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WASTE ISOLATION PILOT PLANT

NO-MIGRATION
VARIANCE PETITION

APPENDIX B, ATTACHMENTS A through D

VOLUME III

MARCH 1990

Prepared for the
Department of Energy
Under Contract DE-AC04-86AL31950

Westinghouse Electric Corporation
Waste Isolation Division
Carlsbad, New Mexico

MASTER

ATTACHMENT A

TRUPACT-II CONTENT CODES (TRUCON)

DOE/WIPP 89-004

Rev. 3

TRUPACT-II CONTENT CODES (TRUCON)

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MASTER

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INTRODUCTION

The Transuranic Package Transporter (TRUPACT-II) Content Codes document (TRUCON) represents the development of a new content code system for shipping contact handled transuranic (CH-TRU) waste in TRUPACT-II. It will be used to convert existing waste forms, content codes, and any other identification codes into a system that is uniform throughout for all the Department of Energy (DOE) sites.

These various codes can be grouped under the newly formed shipping content codes without any loss of waste characterization information. The TRUCON document provides a parametric description for each content code for waste generated and compiles this information for all ten DOE sites. Compliance with waste generation, processing and certification procedures at the sites (outlined in the TRUCON document for each content code) ensures that prohibited waste forms are not present in the waste. The content code essentially gives a description of the CH-TRU waste material in terms of processes and packaging, and the generation location. This helps to provide cradle-to-grave traceability of the waste material so that the various actions required to assess its qualification as payload for the TRUPACT-II package can be performed.

The TRUPACT-II Authorized Methods for Payload Control (TRAMPAC), Appendix 1.3.7 of the Safety Analysis Report (SAR), describes the current governing procedures applicable for this qualification. The assignment of shipping categories to each of these content codes is provided in TRUCON. The logic for this classification is presented in Section 1.2.3.1 of the SAR. Together, these documents (TRUCON, TRAMPAC, and relevant sections of the SAR) present the foundation and the justification for placing wastes defined by specific content codes into the general shipping categories. The shipping categories impose restrictions and requirements on the manner in which a payload can be assembled. Only content codes described in TRUCON can be considered for shipping in TRUPACT-II.

Each DOE site has an established waste identification system. These existing systems provide a ready source of information about the waste material, in the form of internal Item Description Codes (IDC) or content codes. In some cases, the IDCs have been grouped into content codes for waste certification purposes.

The content codes have now been further consolidated to form the more general shipping content codes to give the system continuity across all the DOE sites. For purposes of simplicity, all previous identification codes will be referred to as "IDCs" and the new shipping content codes will be referred to as "content codes". An overall Correlation Table is attached to the TRUCON document as Table 1, to relate the new content codes to the old identification codes.

Each content code uniquely identifies the generated waste and provides a system for tracking the process and package history. With this information, an evaluation of the waste in each container can be made to assign it to the proper shipping category.

A two-letter site abbreviation precedes the numerical code and designates the physical location of the generated/stored waste. The site-specific letter designations for each of the DOE sites are provided in Table 2.

The first number of the content code is a "1" or "2", to provide a distinction between newly generated and retrievably stored waste. For example, a content code "1XX" is newly generated waste, and a content code "2XX" is retrievably stored waste. Newly generated waste is defined as waste generated after the Waste Isolation Pilot Plant (WIPP) waste certification program had been implemented at each site. Retrievably stored waste is that which was generated before the implementation of the certification program. CH-TRU waste generated prior to 1970 and non-retrievably stored will not be transported in TRUPACT-II.

Each content code includes a letter code after the three-digit numerical code to allow segregation of wastes that differ in one or more parameter(s). For example, alpha codes may be used to designate more than one packaging configuration for a given waste type.

Tables 3 and 4 list the new content codes that are used, the waste type that each code belongs in, and a short description of each content code.

The content codes are defined in TRUCON to fully characterize the waste and provide descriptions for compliance with the following parameters:

- Content Description
- Storage Site (if applicable)
- Generating Site
- Waste Description
- Generating Source(s)
- Waste Form
- Waste Packaging
- Assay
- Free Liquids
- Explosives/Compressed Gases
- Pyrophorics
- Corrosives
- Chemical Compatibility
- Payload Container Venting and Aspiration
- Additional Criteria
- Shipping Category
- Analytical Category - Maximum Allowable Wattage
- Test Category - Maximum Allowable Wattage
- Correlation Table for Content Codes

CONTENT DESCRIPTION: Identifies the physical form of the waste, describing whether it is inorganic or organic, solidified or solid. This is equivalent to the waste type description in the SAR.

GENERATING SITE: Provides the location of waste generation.

STORAGE SITE: Provides the location of retrievably stored waste, if the location is different than the generating site.

WASTE DESCRIPTION: Provides basic information on the nature and main components of the waste.

GENERATING SOURCE(S): Lists processes and/or buildings at each site that generates the waste in each content code.

WASTE FORM: Provides more detailed information on the waste contents, how the waste is processed, and specific information about the chemistry of constituents.

WASTE PACKAGING: Describes, in detail, techniques necessary for waste packaging in a given content code. This includes a description of the waste confinement layers, the number of layers of plastic bags used in packaging waste, and the mechanism for bag closure. The specifications for the packaging materials are defined in Appendices 1.3.3 to 1.3.6 of the SAR.

This section is very important because the maximum number of bag layers is fixed by the shipping category. For newly generated waste, the packaging procedures specify the maximum number of plastic bag layers for each content code. For retrievably stored waste, this information is obtained from the records maintained for each content code and supplemental sampling programs. Any change in waste packaging technology at a generator site for a given content code will require a re-evaluation of the waste container parameters for that specific content code and an amendment to the SAR to change the shipping category, with appropriate updates in this document.

ASSAY: Describes the types of radioactive materials measurement techniques utilized to obtain fissile material content and decay heat values for a particular content code. Acceptable assay methods are described in TRAMPAC.

FREE LIQUIDS: Describes the authorized procedures used by the sites to ensure that the limits imposed on free liquids (<1% by volume) are met for each content code.

EXPLOSIVES/COMPRESSED GASES: Identifies the methods used to preclude the presence of explosives or compressed gases, and the method for secondary verification of this requirement.

PYROPHORICS: Describes the controls in place at each site to ensure that nonradionuclide pyrophoric materials in TRU waste are excluded, reacted to render nonpyrophoric, or are immobilized prior to placement in waste.

CORROSIVES: Describes the controls in place to ensure that corrosive materials in TRU waste are either not present or are neutralized or immobilized prior to placement in a payload container.

CHEMICAL COMPATIBILITY: Describes the controls in place to ensure chemical compatibility for the waste contents and the TRUPACT-II package. Trace chemicals/materials are components present in the waste in less than one percent quantities by weight. The total quantity of trace chemicals/materials in the waste shall not exceed five percent by weight.

PAYLOAD CONTAINER VENTING AND ASPIRATION: Drums which have been stored in an unvented condition (no carbon composite filter and punctured liner) must be aspirated for a specific length of time to ensure equilibration of any gases that may have accumulated in the closed container. This procedure is required only for retrievably stored drums.

Three procedures are available to the sites for deriving aspiration times:

• Option 1 - Aspiration Time Based on Date of Drum Closure. For sites using this option, the steps outlined below shall be implemented to determine the aspiration time for a payload container.

1. The potential shipping category of the payload container shall be known.
2. The duration for which the container has been in a closed condition should be computed from a knowledge of the date of closure of the drum. This closure time should be rounded up to the next highest time period listed in Tables 7-1, 7-2 or 7-3.

3. The required aspiration time corresponding to this closure time should then be read from the appropriate shipping category column of the same table.
4. The container shall be qualified for shipment only after being aspirated for at least this period of time.

Option 2 - Headspace Gas Sampling At The Time Of Venting. For sites using this option, the steps outlined below shall be implemented to determine the aspiration time for a payload container.

1. The potential shipping category of the payload container shall be known.
2. At the time of venting, a headspace sample shall be taken from the container headspace and analyzed for the hydrogen concentration.
3. The measured headspace concentration of hydrogen shall be rounded up to the next highest mole percentage listed in Tables 8-1, 8-2, or 8-3.
4. The required aspiration time corresponding to this molar percentage shall be read from the appropriate shipping category column of the same table.
5. The container shall be qualified for shipment only after being aspirated for at least this period of time.

Option 3 - Headspace Gas Sampling During Aspiration. For sites using this option, the steps outlined below shall be implemented to determine the aspiration time for a payload container.

1. The potential shipping category of the payload container shall be known.

2. Prior to measuring the hydrogen concentration in the payload container headspace, the drum shall be vented for at least two weeks.
3. The measured headspace concentration of hydrogen shall be rounded up to the next highest mole percentage listed in Tables 9-1, 9-2 or 9-3.
4. The required aspiration time corresponding to this molar percentage shall be read from the appropriate shipping category column of the same table.
5. The container shall be qualified for shipment only after being aspirated for this period of time.

Each applicable content code lists the tables for locating aspiration times for the respective option used. Each site must choose one of the three options to qualify unvented containers for shipment.

ADDITIONAL CRITERIA: Provides details on how the waste qualifies for shipment by meeting additional transport requirements (e.g., filtering drums or Standard Waste Boxes [SWB] and puncturing liners).

SHIPPING CATEGORY: Defines the category under which this content code will be shipped. This determination follows directly from information on each content code presented in this document, by verification of the compliance requirements outlined in TRAMPAC, and from the logic outlined for the designation of the shipping categories in Section 1.2.3.2 of the SAR. A brief description of this logic is reproduced below. Table 5 provides a summary of the content codes in each shipping category.

A shipping category is defined by four major parameters:

- Chemical form of the waste
- Type of payload container
- Type of innermost confinement layer and maximum layers of plastic bags used in packaging, and
- Whether a payload container is shippable by analysis or test.

Based on chemical form, the payloads are subdivided into four waste types, which are identified by the following Roman numerals:

- I - Solidified aqueous or homogeneous inorganic solids
- II - Solid inorganics
- III - Solid organics
- IV - Solidified organics

These four waste types are further broken down by effective G (flammable gas) values in waste material types as follows (Section 3.6.7 of the SAR):

- I.1 - 1.6
- I.2 - 1.3
- I.3 - 0.4
- II.1 - 1.7
- II.2 - 0
- III.1 - 3.4

Each of these waste material types can be shipped in any one of the following types of payload containers, which have been segregated by alpha designations:

- A - Drums
- B - Overpacks of up to four drums in a Standard Waste Box
- C - Standard Waste Boxes
- D - Overpacks of experimental bin in a Standard Waste Box

Combinations of the above two classifications may have different levels of plastic confinement determined by the packaging procedure. A numerical identification, such as the following, identifies the packaging configuration:

- 0 - No plastic bags around waste
- 1 - Maximum of one plastic bag around the waste
- 2 - Maximum of two layers of plastic bags around the waste
- 3 - Maximum of three layers of plastic bags around the waste
- 4 - Maximum of four layers of plastic bags around the waste

- 5 - Maximum of five layers of plastic bags around the waste
- 6 - Maximum of six layers of plastic bags around the waste
- M - Metal containers as the innermost layer of confinement

Any combination of the above three parameters produces a shipping category. For example, "I.1A4" would be a solidified inorganic with an effective G (flammable) value of 1.6, packaged in a drum, with a maximum of four layers of plastic confinement.

The broadest subdivision of CH-TRU materials consists of two groupings. The first group identifies those materials for which an analytical prediction of safe gas concentrations is possible under worst-case conditions. Payload containers in this group are qualified for shipment by analysis. The second group consists of materials for which an actual pre-transport test is required on each payload container to qualify it for shipment. A content code can be qualified for shipment after a sufficient number of payload containers have been tested, the SAR is amended, and appropriate updates have been made to this document. The test procedure is detailed in Appendix 1.3.7 of the SAR.

The analytical predictions are based on the waste material type, the type of payload container, the number of layers of confinement around the material in the payload container, and the energy of the radionuclide emissions present in the material. These factors, which are related to the gas generation rates and release of gas into the TRUPACT-II Inner Containment Vessel (ICV) from the payload containers, are the basis for the classification of CH-TRU materials into payload shipping categories.

Each of the many categories of CH-TRU materials which are grouped into the analytical subdivision have a specific limit on the decay heat that can be present per payload container. The decay heat limit is set such that potentially flammable concentrations of hydrogen are not accumulated in any part of the payload or the package during transport. The analytical prediction considers the chemical form of the CH-TRU materials in each category, since the chemical form is directly related to the number of potential hydrogen gas molecules produced for each radionuclide absorption (the effective G value, or number of molecules of gas species produced per 100 eV of decay energy absorbed by the waste).

The CH-TRU materials which cannot be demonstrated shippable by analysis must be tested for the total gas generation rate of potentially flammable and potentially corrosive gases under normal shipping conditions in a TRUPACT-II package. These materials are identified by a "T" placed after the shipping category, which classifies the content code as a test category. Any shipping category can be a test category; an example of this designation is "IVA4T".

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: This section provides the maximum allowable wattage derived from analytical calculations for each content code. Maximum decay heat values are provided (where applicable) for a single drum, an overpack of one or more drums in a Standard Waste Box, and a Standard Waste Box. Maximum decay heat limits are also given (where applicable) for a TRUPACT-II loaded with single drums, with overpacks of one or more drums in Standard Waste Boxes and with Standard Waste Boxes.

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: This section provides the maximum allowable wattage based on pre-transport test requirements for each content code. The maximum allowable wattage limits are given on a per drum and per TRUPACT-II basis.

CORRELATION TABLE: This table provides reference to the IDCs used for that particular content code. These correlations are represented in their entirety in the comprehensive correlation table attached as Table 1.

With the information listed in TRUCON, plus physical measurements specified by the SAR, waste can be properly qualified for shipping. The waste form must have been pre-assigned a content code which is listed in this document in order to qualify for shipment. The Nuclear Regulatory Commission (NRC) will be notified of revisions made to this document.

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>		
INEL	RFP	001	ID 111B	I.2A2	I.2B2	I.2D2
INEL	RFP	001	ID 127A	III.1D2		
INEL	RFP	001	ID 211A	I.2A2	I.2B2	
LANL	LANL	001	LA 125A	III.1C1		
LLNL	LLNL	001	LL 116A	III.1A2	III.1B2	
NTS	LLNL	001	NT 116A	III.1A2	III.1B2	
NTS	LLNL	001	NT 225A	III.1A2	III.1B2	
RH	RH	001	RH 125A	III.1A4	III.1B4	
SRP	SRP	001	SR 125A	III.1A5		
INEL	RFP	002	ID 111B	I.2A2	I.2B2	I.2D2
INEL	RFP	002	ID 127A	III.1D2		
INEL	RFP	002	ID 211A	I.2A2	I.2B2	
LANL	LANL	002	LA 111A	I.2A0	I.2B0	
LANL	LANL	002	LA 211A	I.2A0	I.2B0	
LLNL	LLNL	002	LL 111A	I.1A0	I.1B0	
NTS	LLNL	002	NT 111A	I.1A0	I.1B0	
NTS	LLNL	002	NT 211A	I.1A0	I.1B0	
RH	RH	002	RH 125A	III.1A4	III.1B4	
INEL	RFP	003	ID 212A	IVA2T	IVB2T	
LANL	LANL	003	LA 111B	I.2A0	I.2B0	
LANL	LANL	003	LA 211B	I.2A0	I.2B0	
RH	RH	003	RH 114A	I.3A3	I.3B3	
INEL	RFP	004	ID 213A	IVA2T	IVB2T	
LANL	LANL	004	LA 116A	III.1A4	III.1B4	
LLNL	LLNL	004	LL 124A	II.2AM	II.2BM	
RH	RH	004	RH 112A	IVA2T	IVB2T	
LANL	LANL	005 P2G	LA 115A	II.2AM	II.2BM	
LANL	LANL	005 LM	LA 117A	II.1C4		
LANL	LANL	005 LG	LA 118A	II.2AM	II.2BM	

TABLE 1
CROSS CORRELATION TABLE

Shipping Site	Generating Site	IDC	Content Code	Shipping Category			
LANL	LANL	005 P1	LA 123A	III.1A4	III.1B4		
LANL	LANL	005 P2S	LA 124A	II.2AM	II.2BM		
LANL	LANL	006	LA 114A	I.1A2	I.1B2		
LANL	LANL	006	LA 126A	III.1A2	III.1B2		
INEL	RFP	007	ID 111B	I.2A2	I.2B2	I.2D2	
INEL	RFP	007	ID 127A	III.1D2			
INEL	RFP	007	ID 211A	I.2A2	I.2B2		
ANL-E	ANL-E	110	AE 116A	III.1C0			
ANL-E	ANL-E	110	AE 116B	III.1A1	III.1B1		
ANL-E	ANL-E	111	AE 116A	III.1C0			
ANL-E	ANL-E	120	AE 116A	III.1C0			
ANL-E	ANL-E	120	AE 116B	III.1A1	III.1B1		
ANL-E	ANL-E	121	AE 116A	III.1C0			
ANL-E	ANL-E	131	AE 111A	I.1A0	I.1B0		
INEL	RFP	241	ID 125A	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	241	ID 127A	III.1D2			
INEL	RFP	241	ID 225A	III.1A4	III.1B4		
NTS	LLNL	292	NT 111A	I.1A0	I.1B0		
NTS	LLNL	292	NT 211A	I.1A0	I.1B0		
INEL	RFP	300	ID 115A	II.1A4	II.1B4		
INEL	RFP	300	ID 115B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	300	ID 115C	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	300	ID 215A	II.1A4	II.1B4		
RFP	RFP	300	RF 115A	II.1A4	II.1B4		
RFP	RFP	300	RF 115B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	302	ID 121A	III.1C1			
INEL	RFP	302	ID 121B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	302	ID 121C	III.1A2	III.1B2	III.1C1	III.1D2
INEL	RFP	302	ID 127A	III.1D2			

TABLE 1
CROSS CORRELATION TABLE

Shipping Site	Generating Site	IDC	Content Code	Shipping Category			
INEL	RFP	302	ID 127B	III.1D2			
INEL	RFP	302	ID 221A	III.1A4	III.1B4		
RFP	RFP	302	RF 121A	III.1C1			
RFP	RFP	302	RF 121B	III.1A2	III.1B2	III.1C1	III.1D2
RFP	RFP	302	RF 127A	III.1D2			
INEL	RFP	303	ID 115A	II.1A4	II.1B4		
INEL	RFP	303	ID 115C	II.1A2	II.1B2	II.1C2	II.1D2
RFP	RFP	303	RF 115A	II.1A4	II.1B4		
RFP	RFP	303	RF 115B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	312	ID 115A	II.1A4	II.1B4		
INEL	RFP	312	ID 115C	II.1A2	II.1B2	II.1C2	II.1D2
RFP	RFP	312	RF 115A	II.1A4	II.1B4		
RFP	RFP	312	RF 115B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	320	ID 117A	II.1A4	II.1B4	II.1C2	
INEL	RFP	320	ID 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	320	ID 117C	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	320	ID 217B	II.1A4	II.1B4		
RFP	RFP	320	RF 117A	II.1A4	II.1B4	II.1C2	
RFP	RFP	320	RF 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	321	ID 117A	II.1A4	II.1B4	II.1C2	
INEL	RFP	321	ID 117C	II.1A2	II.1B2	II.1C2	II.1D2
RFP	RFP	321	RF 117A	II.1A4	II.1B4	II.1C2	
RFP	RFP	321	RF 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	330	ID 116A	III.1A4	III.1B4	III.1C1	
INEL	RFP	330	ID 116B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	330	ID 116C	III.1A2	III.1B2	III.1C1	III.1D2
INEL	RFP	330	ID 127A	III.1D2			
INEL	RFP	330	ID 216C	III.1A5	III.1B5		
NTS	LLNL	330	NT 225A	III.1A2	III.1B2		

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>		
INEL	RFP	335	ID 119A	III.1A4	III.1B4	III.1C3
INEL	RFP	335	ID 119B	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	335	ID 119C	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	335	ID 127A	III.1D2		
INEL	RFP	335	ID 127B	III.1D2		
INEL	RFP	335	ID 219A	III.1A4	III.1B4	
RFP	RFP	335	RF 119A	III.1A4	III.1B4	III.1C3
RFP	RFP	335	RF 119B	III.1A2	III.1B2	III.1C2 III.1D2
RFP	RFP	335	RF 127A	III.1D2		
INEL	RFP	336	ID 116A	III.1A4	III.1B4	III.1C1
INEL	RFP	336	ID 116B	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	336	ID 116C	III.1A2	III.1B2	III.1C1 III.1D2
INEL	RFP	336	ID 127A	III.1D2		
INEL	RFP	336	ID 216A	III.1A4	III.1B4	
INEL	RFP	337	ID 116A	III.1A4	III.1B4	III.1C1
INEL	RFP	337	ID 116B	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	337	ID 116C	III.1A2	III.1B2	III.1C1 III.1D2
INEL	RFP	337	ID 127A	III.1D2		
INEL	RFP	337	ID 216C	III.1A5	III.1B5	
INEL	RFP	338	ID 119A	III.1A4	III.1B4	III.1C3
INEL	RFP	338	ID 119B	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	338	ID 119C	III.1A2	III.1B2	III.1C2 III.1D2
INEL	RFP	338	ID 127A	III.1D2		
INEL	RFP	338	ID 127B	III.1D2		
INEL	RFP	338	ID 219A	III.1A4	III.1B4	
RFP	RFP	338	RF 119A	III.1A4	III.1B4	III.1C3
RFP	RFP	338	RF 119B	III.1A2	III.1B2	III.1C2 III.1D2
RFP	RFP	338	RF 127A	III.1D2		
INEL	RFP	339	ID 123A	III.1A4	III.1B4	

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>			
INEL	RFP	339	ID 123B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	339	ID 123C	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	339	ID 127A	III.1D2			
INEL	RFP	339	ID 127B	III.1D2			
INEL	RFP	339	ID 223A	III.1A4	III.1B4		
RFP	RFP	339	RF 123A	III.1A4	III.1B4		
RFP	RFP	339	RF 123B	III.1A2	III.1B2	III.1D2	
RFP	RFP	339	RF 127A	III.1D2			
INEL	RFP	342	ID 119A	III.1A4	III.1B4	III.1C3	
INEL	RFP	342	ID 119C	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	342	ID 127B	III.1D2			
RFP	RFP	342	RF 119A	III.1A4	III.1B4	III.1C3	
RFP	RFP	342	RF 119B	III.1A2	III.1B2	III.1C2	III.1D2
RFP	RFP	342	RF 127A	III.1D2			
INEL	RFP	368	ID 118A	II.1A4	II.1B4	II.1C1	
INEL	RFP	368	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	368	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	368	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	370	ID 118A	II.1A4	II.1B4	II.1C1	
INEL	RFP	370	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	370	ID 122B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	370	ID 222A	II.2AM	II.2BM		
RFP	RFP	370	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	370	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	371	ID 122A	II.1A4	II.1B4	II.1C1	
INEL	RFP	371	ID 122B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	371	ID 122C	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	371	ID 222B	II.1A5	II.1B5		
RFP	RFP	371	RF 122A	II.1A4	II.1B4	II.1C1	

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>			
RFP	RFP	371	RF 122B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	374	ID 121A	III.1A4	III.1B4		
INEL	RFP	374	ID 121C	III.1A2	III.1B2	III.1C1	III.1D2
INEL	RFP	374	ID 127B	III.1D2			
RFP	RFP	374	RF 121A	III.1A4	III.1B4		
RFP	RFP	374	RF 121B	III.1A2	III.1B2	III.1C1	III.1D2
RFP	RFP	374	RF 127A	III.1D2			
INEL	RFP	375	ID 122A	II.1A4	II.1B4	II.1C1	
INEL	RFP	375	ID 122C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	375	RF 122A	II.1A4	II.1B4	II.1C1	
RFP	RFP	375	RF 122B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	376	ID 119A	III.1A4	III.1B4	III.1C3	
INEL	RFP	376	ID 119C	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	376	ID 127B	III.1D2			
RFP	RFP	376	RF 119A	III.1A4	III.1B4	III.1C3	
RFP	RFP	376	RF 119B	III.1A2	III.1B2	III.1C2	III.1D2
RFP	RFP	376	RF 127A	III.1D2			
INEL	RFP	377	ID 122A	II.1A4	II.1B4	II.1C1	
INEL	RFP	377	ID 122C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	377	RF 122A	II.1A4	II.1B4	II.1C1	
RFP	RFP	377	RF 122B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	379	ID 122A	II.1A4	II.1B4	II.1C1	
INEL	RFP	379	ID 122C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	379	RF 122A	II.1A4	II.1B4	II.1C1	
RFP	RFP	379	RF 122B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	410	ID 224A	II.2AM	II.2BM		
INEL	RFP	411	ID 124A	II.2AM	II.2BM		
INEL	RFP	411	ID 224A	II.2AM	II.2BM		
RFP	RFP	411	RF 124A	II.2AM	II.2BM		

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>			
INEL	RFP	412	ID 224A	II.2AM	II.2BM		
INEL	RFP	416	ID 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	416	ID 217A	II.2AM	II.2BM		
INEL	RFP	429	ID 124A	II.2AM	II.2BM		
RFP	RFP	429	RF 124A	II.2AM	II.2BM		
INEL	RFP	432	ID 126B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	432	ID 226A	III.1A4	III.1B4		
INEL	RFP	433	ID 124A	II.2AM	II.2BM		
RFP	RFP	433	RF 124A	II.2AM	II.2BM		
INEL	RFP	438	ID 122A	II.1A4	II.1B4	II.1C1	
INEL	RFP	438	ID 122C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	438	RF 122A	II.1A4	II.1B4	II.1C1	
RFP	RFP	438	RF 122B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	440	ID 118A	II.1A4	II.1B4	II.1C1	
INEL	RFP	440	ID 118B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	440	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	440	ID 218B	II.1A6	II.1B6		
RFP	RFP	440	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	440	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	441	ID 125A	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	441	ID 127A	III.1D2			
INEL	RFP	441	ID 225B	III.1A5	III.1B5		
INEL	RFP	442	ID 118A	II.1A4	II.1B4	II.1C1	
INEL	RFP	442	ID 118B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	442	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	442	ID 218A	II.1A5	II.1B5		
RFP	RFP	442	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	442	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	443	ID 118A	II.1A4	II.1B4	II.1C1	

TABLE 1
CROSS CORRELATION TABLE

Shipping Site	Generating Site	IDC	Content Code	Shipping Category			
INEL	RFP	443	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	443	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	443	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	444	ID 118A	II.1A4	II.1B4	II.1C1	
INEL	RFP	444	ID 118C	II.1A2	II.1B2	II.1C1	II.1D2
RFP	RFP	444	RF 118A	II.1A4	II.1B4	II.1C1	
RFP	RFP	444	RF 118B	II.1A2	II.1B2	II.1C1	II.1D2
INEL	RFP	454	ID 124A	II.2AM	II.2BM		
RFP	RFP	454	RF 124A	II.2AM	II.2BM		
INEL	RFP	463	ID 123B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	463	ID 127A	III.1D2			
INEL	RFP	463	ID 223A	III.1A4	III.1B4		
INEL	RFP	464	ID 121B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	464	ID 127A	III.1D2			
INEL	RFP	464	ID 221A	III.1A4	III.1B4		
INEL	RFP	480	ID 117A	II.1A4	II.1B4	II.1C2	
INEL	RFP	480	ID 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	480	ID 117C	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	480	ID 217C	II.1A5	II.1B5		
RFP	RFP	480	RF 117A	II.1A4	II.1B4	II.1C2	
RFP	RFP	480	RF 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	481	ID 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	481	ID 217C	II.1A5	II.1B5		
INEL	RFP	488	ID 117A	II.1A4	II.1B4	II.1C2	
INEL	RFP	488	ID 117C	II.1A2	II.1B2	II.1C2	II.1D2
RFP	RFP	488	RF 117A	II.1A4	II.1B4	II.1C2	
RFP	RFP	488	RF 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	490	ID 119A	III.1A4	III.1B4	III.1C3	
INEL	RFP	490	ID 119B	III.1A2	III.1B2	III.1C2	III.1D2

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>			
INEL	RFP	490	ID 119C	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	490	ID 127A	III.1D2			
INEL	RFP	490	ID 127B	III.1D2			
INEL	RFP	490	ID 219A	III.1A4	III.1B4		
RFP	RFP	490	RF 119A	III.1A4	III.1B4	III.1C3	
RFP	RFP	490	RF 119B	III.1A2	III.1B2	III.1C2	III.1D2
RFP	RFP	490	RF 127A	III.1D2			
INEL	RFP	491	ID 119A	III.1A4	III.1B4	III.1C3	
INEL	RFP	491	ID 119C	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	491	ID 127B	III.1D2			
RFP	RFP	491	RF 119A	III.1A4	III.1B4	III.1C3	
RFP	RFP	491	RF 119B	III.1A2	III.1B2	III.1C2	III.1D2
RFP	RFP	491	RF 127A	III.1D2			
INEL	RFP	700	ID 112A	IVA2T	IVB2T		
INEL	RFP	800	ID 111A	I.2A2	I.2B2		
INEL	RFP	800	ID 111C	I.2A2	I.2B2	I.2D2	
INEL	RFP	800	ID 127B	III.1D2			
RFP	RFP	800	RF 111A	I.2A2	I.2B2		
RFP	RFP	800	RF 111B	I.2A2	I.2B2	I.2D2	
RFP	RFP	800	RF 127A	III.1D2			
INEL	RFP	801	ID 112A	IVA2T	IVB2T		
RFP	RFP	801	RF 112A	IVA2T	IVB2T		
INEL	RFP	802	ID 113A	IVA2T	IVB2T		
RFP	RFP	802	RF 113A	IVA2T	IVB2T		
INEL	RFP	803	ID 111A	I.2A2	I.2B2		
INEL	RFP	803	ID 111C	I.2A2	I.2B2	I.2D2	
INEL	RFP	803	ID 127B	III.1D2			
RFP	RFP	803	RF 111A	I.2A2	I.2B2		
RFP	RFP	803	RF 111B	I.2A2	I.2B2	I.2D2	

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>		
RFP	RFP	803	RF 127A	III.1D2		
INEL	RFP	806	ID 114A	I.3A2	I.3B2	I.3D2
INEL	RFP	806	ID 126A	III.1A3	III.1B3	
RFP	RFP	806	RF 114A	I.3A4	I.3B4	
RFP	RFP	806	RF 114B	I.3A2	I.3B2	I.3D2
INEL	RFP	807	ID 111A	I.2A2	I.2B2	
INEL	RFP	807	ID 111C	I.2A2	I.2B2	I.2D2
INEL	RFP	807	ID 127B	III.1D2		
RFP	RFP	807	RF 111A	I.2A2	I.2B2	
RFP	RFP	807	RF 111B	I.2A2	I.2B2	I.2D2
RFP	RFP	807	RF 127A	III.1D2		
INEL	RFP	808	ID 112A	IVA2T	IVB2T	
RFP	RFP	808	RF 112A	IVA2T	IVB2T	
INEL	RFP	809	ID 126A	III.1A3	III.1B3	
INEL	RFP	809	ID 126C	III.1A2	III.1B2	III.1C2 III.1D2
RFP	RFP	809	RF 126A	III.1A4	III.1B4	
RFP	RFP	809	RF 126B	III.1A2	III.1B2	III.1D2
INEL	RFP	817	ID 126A	III.1A3	III.1B3	
INEL	RFP	818	ID 126A	III.1A3	III.1B3	
INEL	RFP	820	ID 126A	III.1A3	III.1B3	
INEL	RFP	822	ID 126A	III.1A3	III.1B3	
INEL	RFP	823	ID 126A	III.1A3	III.1B3	
MOUND	MOUND	824	MD 117A	II.1A3	II.1B3	II.1C0
MOUND	MOUND	827	MD 116A	III.1A3	III.1B3	
INEL	RFP	831	ID 116A	III.1A4	III.1B4	III.1C1
INEL	RFP	831	ID 116C	III.1A2	III.1B2	III.1C1 III.1D2
INEL	RFP	831	ID 127B	III.1D2		
RFP	RFP	831	RF 116A	III.1A4	III.1B4	III.1C1
RFP	RFP	831	RF 116B	III.1A2	III.1B2	III.1C1 III.1D2

TABLE 1
CROSS CORRELATION TABLE

Shipping Site	Generating Site	IDC	Content Code	Shipping Category			
RFP	RFP	831	RF 127A	III.1D2			
INEL	RFP	832	ID 116A	III.1A4	III.1B4	III.1C1	
INEL	RFP	832	ID 116C	III.1A2	III.1B2	III.1C1	III.1D2
INEL	RFP	832	ID 127B	III.1D2			
RFP	RFP	832	RF 116A	III.1A4	III.1B4	III.1C1	
RFP	RFP	832	RF 116B	III.1A2	III.1B2	III.1C1	III.1D2
RFP	RFP	832	RF 127A	III.1D2			
INEL	RFP	833	ID 116A	III.1A4	III.1B4	III.1C1	
INEL	RFP	833	ID 116C	III.1A2	III.1B2	III.1C1	III.1D2
INEL	RFP	833	ID 127B	III.1D2			
RFP	RFP	833	RF 116A	III.1A4	III.1B4	III.1C1	
RFP	RFP	833	RF 116B	III.1A2	III.1B2	III.1C1	III.1D2
RFP	RFP	833	RF 127A	III.1D2			
MOUND	MOUND	836	MD 111A	I.2A0	I.2B0		
MOUND	MOUND	842	MD 111B	I.2C0			
INEL	RFP	854	ID 117A	II.1A4	II.1B4	II.1C2	
INEL	RFP	854	ID 117C	II.1A2	II.1B2	II.1C2	II.1D2
RFP	RFP	854	RF 117A	II.1A4	II.1B4	II.1C2	
RFP	RFP	854	RF 117B	II.1A2	II.1B2	II.1C2	II.1D2
INEL	RFP	860	ID 127A	III.1D2			
INEL	RFP	860	ID 127B	III.1D2			
RFP	RFP	860	RF 127A	III.1D2			
INEL	RFP	900	ID 116B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	900	ID 127A	III.1D2			
INEL	RFP	900	ID 216B	III.1A2	III.1B2		
NTS	LLNL	961	NT 225A	III.1A2	III.1B2		
INEL	RFP	970	ID 116B	III.1A2	III.1B2	III.1C2	III.1D2
INEL	RFP	970	ID 127A	III.1D2			
INEL	RFP	970	ID 216A	III.1A4	III.1B4		

TABLE 1
CROSS CORRELATION TABLE

<u>Shipping Site</u>	<u>Generating Site</u>	<u>IDC</u>	<u>Content Code</u>	<u>Shipping Category</u>		
INEL	RFP	976	ID 111B	I.2A2	I.2B2	I.2D2
INEL	RFP	976	ID 127A	III.1D2		
INEL	RFP	976	ID 211A	I.2A2	I.2B2	
INEL	RFP	978	ID 111B	I.2A2	I.2B2	I.2D2
INEL	RFP	978	ID 127A	III.1D2		
INEL	RFP	978	ID 211A	I.2A2	I.2B2	
NTS	LLNL	993	NT 116A	III.1A2	III.1B2	
NTS	LLNL	993	NT 225A	III.1A2	III.1B2	
ORNL	ORNL	N/A	OR 125A	III.1A2	III.1B2	
ORNL	ORNL	N/A	OR 125B	III.1A2	III.1B2	
RH	RH	N/A	RH 123A	III.1A4	III.1B4	
SRP	SRP	N/A	SR 116A	III.1A3	III.1B3	
SRP	SRP	N/A	SR 116B	III.1A4	III.1B4	
SRP	SRP	N/A	SR 116C	III.1A5	III.1B5	
SRP	SRP	N/A	SR 122A	II.1A3	II.1B3	
SRP	SRP	N/A	SR 122B	II.1A4	II.1B4	
SRP	SRP	N/A	SR 122C	II.1A5	II.1B5	

TABLE 2

WASTE GENERATOR/SHIPPER SITE IDENTIFICATION CODES

<u>Site Name</u>	<u>Site Identifier Code</u>
Argonne National Laboratory - East (ANL-E)	AE*
Argonne National Laboratory - West (ANL-W)	AW*
Battelle Columbus Laboratory (BCL)	BC*
Battelle - Pacific Northwest Laboratory (PNL)	BP*
Bettis Atomic Power Laboratory (BET)	BE*
Hanford (small offsite generators shipping for interim storage)	HF*
Idaho National Engineering Laboratory (INEL)	ID**
Los Alamos National Laboratory (LANL)	LA**
Lawrence Livermore National Laboratory (LLNL)	LL*
Mound	MD*
Nevada Test Site (NTS)	NT*
Oak Ridge National Laboratory (ORNL)	OR*
Rocky Flats Plant (RFP)	RF**
Richland Hanford (RH)	RH**
Savannah River Plant and Laboratory (SRP)	SR**

* Minor waste generating/storage site

** Major waste generating/storage site

TABLE 3

CONTENT CODES FOR NEWLY GENERATED WASTE

WASTE TYPE

- I 111 TRU Solidified Aqueous or Homogeneous Inorganic Solids - cemented or dewatered sludge precipitated from aqueous waste treatment process. Soils which are not contaminated with organic chemicals are classified as homogeneous solids.
- IV 112 TRU Solidified Organics - cemented or absorbed organic liquids from production or laboratory processes.
- IV 113 TRU Solidified Laboratory Waste - cemented or absorbed neutralized aqueous laboratory waste (contains organic acids, etc).
- I 114 TRU Solidified Inorganic Process Solids - cemented inorganic particulate or sludge-like (not chemically precipitated) wastes from plutonium recovery operations.
- II 115 TRU Graphite Waste - discarded graphite molds, laboratory equipment and furnace equipment (whole or pieces) from plutonium casting or laboratory operations.
- III 116 TRU Combustible Waste - cellulosic, plastic or cloth waste from various processes.
- II 117 TRU Metal Waste - discarded metal (i.e., tantalum, aluminum, stainless steel) from production or maintenance operations.
- II 118 TRU Glass Waste - discarded labware, windows, containers or raschig rings from various processes.

TABLE 3

CONTENT CODES FOR NEWLY GENERATED WASTE

WASTE TYPE

	III	119	<u>TRU Filter Waste</u> - HEPA filters or processed filter media from filter change operations. (Most filters or the housings for filters are made of organic material.)
	II	120	<u>TRU Isotopic Source Waste.</u>
	III	121	<u>TRU Organic Solid Waste</u> - solid organic waste such as methyl methacrylate (Plexiglas) and Benaalex.
	II	122	<u>TRU Inorganic Solid Waste</u> - solid inorganic waste such as insulation, firebrick, concrete.
	III	123	<u>TRU Leaded Rubber</u> - discarded leaded glovebox gloves and leaded aprons.
	II	124	<u>TRU Pyrochemical Salt Waste</u> - used chloride salts from pyrochemical processes such as electrowinning, molten salt extraction or direct oxide reduction.
	III	125	<u>TRU Combustible and Noncombustible Waste</u> - mixture of paper, plastic, metal and glass waste.
	III	126	<u>TRU Cemented Organic Process Solids</u> - cemented organic particulate, sludge-like (not chemically precipitated) waste or resins.
	III	127	<u>TRU Combined Solid Organics and Solidified Inorganics</u> - cellulosic, plastic or cloth waste from various processes combined with cemented or dewatered sludge precipitated from aqueous waste treatment process.

TABLE 4

CONTENT CODES FOR RETRIEVABLY STORED WASTE

WASTE TYPE

I	211	<u>TRU Solidified Aqueous or Homogeneous Inorganic Solids</u> - cemented or dewatered sludge precipitated from aqueous waste treatment process. Soils which are not contaminated with organic chemicals are classified as homogeneous solids.
IV	212	<u>TRU Solidified Organics</u> - cemented or absorbed organic liquids from production or laboratory processes.
IV	213	<u>TRU Solidified Laboratory Waste</u> - cemented or absorbed neutralized aqueous laboratory waste (contains organic acids, etc).
I	214	<u>TRU Solidified Inorganic Process Solids</u> - cemented inorganic particulate or sludge-like (not chemically precipitated) wastes from plutonium recovery operations.
II	215	<u>TRU Graphite Waste</u> - discarded graphite molds, laboratory equipment and furnace equipment (whole or pieces) from plutonium casting or laboratory operations.
III	216	<u>TRU Combustible Waste</u> - cellulosic, plastic or cloth waste from various processes.
II	217	<u>TRU Metal Waste</u> - discarded metal (i.e., tantalum, aluminum, stainless steel) from production or maintenance operations.
II	218	<u>TRU Glass Waste</u> - discarded labware, windows, containers or raschig rings from various processes.

TABLE 4

CONTENT CODES FOR RETRIEVABLY STORED WASTE

<u>WASTE TYPE</u>		
III	219	<u>TRU Filter Waste</u> - HEPA filters or processed filter media from filter change operations. (Most filters or the housings for filters are made of organic material.)
II	220	<u>TRU Isotopic Source Waste</u> .
III	221	<u>TRU Organic Solid Waste</u> - solid organic waste such as methyl methacrylate (Plexiglas) and Benelex.
II	222	<u>TRU Inorganic Solid Waste</u> - solid inorganic waste such as insulation, firebrick, concrete.
III	223	<u>TRU Leaded Rubber</u> - discarded leaded glovebox gloves and leaded aprons.
II	224	<u>TRU Pyrochemical Salt Waste</u> - used chloride salts from pyrochemical processes such as electrowinning, molten salt extraction or direct oxide reduction.
III	225	<u>TRU Combustible and Noncombustible Waste</u> - mixture of paper, plastic, metal and glass waste.
III	226	<u>TRU Cemented Organic Process Solids</u> - cemented organic particulate, sludge-like (not chemically precipitated) waste or resins.

LAYERS OF PLASTIC BAGS

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TABLE 5

Rev. 3, July 1989

CONTENT CODES IN SHIPPING CATEGORIES

LAYERS OF PLASTIC BAGS										WATTAGE PER				WATTAGE PER TRUPACT-II			
SHIP- PING CAT.	G VALUE	WASTE DESCRIPTION	M	0	1	2	3	4	5	6	OVERPACK			OVERPACK			OVERPACK BIN (D)
											DRUM (A)	DRUM (B)	SUB (C)	DRUM (A)	DRUM (B)	SUB (C)	
1.3	0.4	TRU Solidified															
		Aqueous or				ID 114A					0.6375	0.4828			8.9250	3.8624	3.1378
		Homogeneous				RF 114B					0.6375	0.4828			8.9250	3.8624	3.1378
		Inorganic Solids.					RF 114A				0.1863	0.1703			2.6082	1.3624	
		Concreted inorganic						RF 114A			0.1359	0.1272			1.9026	1.0176	
		particulate waste															
		(maximum 30 weight															
		% unbound water).															
11.1	1.7	TRU Solid Inorganic				ID 115B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
		Materials. Solid				ID 115C					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
		Inorganic materials				ID 117B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
		packaged in organic				ID 117C					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
		materials.				ID 118B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
						ID 118C					0.0869	0.0774		0.4271	1.2166	0.6192	1.0722
						ID 122B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
						ID 122C					0.0869	0.0774		0.4271	1.2166	0.6192	1.0722
						RF 115B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
						RF 117B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
						RF 118B					0.0869	0.0774	0.5361	0.4271	1.2166	0.6192	1.0722
						RF 122B					0.0869	0.0774		0.4271	1.2166	0.6192	1.0722
						ID 117A					0.0561	0.0520		0.4271	1.2166	0.6192	1.0722
						SR 122A					0.0561	0.0520			0.7854	0.4160	
						ID 115A					0.0414	0.0392			0.7854	0.4160	
						ID 117A					0.0414	0.0392			0.5796	0.3136	

CONTENT CODES IN SHIPPING CATEGORIES

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LAYERS OF PLASTIC BAGS

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LAYERS OF PLASTIC BAGS

5-5

CONTENT CODES IN SHIPPING CATEGORIES

[illegible]

TABLE 6-1

ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT PER DRUM
(watts/drum)

Waste Matl Type	A - Drum							
	A0	A1	A2	A3	A4	A5	A6	A7
I.1	0.2060	0.1797	0.1594	0.0406				
I.2	0.2536	0.2212	0.1962	0.0573	0.0418			
I.3	0.8241	0.7189	0.6375	0.1863	0.1359			
II.1	0.2251	0.1924	0.0869	0.0561	0.0414	0.0328	0.0272	
II.2								40.0000
III.1	0.1126	0.0962	0.0434	0.0280	0.0207	0.0164	0.0136	

**ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT
PER OVERPACKED DRUM**
(watts/drum)

Waste Matl Type	B - Overpacked Drums							
	B0	B1	B2	B3	B4	B5	B6	B7
I.1	0.1457	0.1320	0.1207	0.0426				
I.2	0.1793	0.1625	0.1486	0.0524	0.0391			
I.3	0.5827	0.5281	0.4828	0.1703	0.1272			
II.1	0.1711	0.1516	0.0774	0.0520	0.0392	0.0314	0.0262	
II.2								40.0000
III.1	0.0856	0.0758	0.0387	0.0260	0.0196	0.0157	0.0131	

ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT PER SWB
(watts/SWB)

Waste Matl Type	C - STANDARD WASTE BOX							
	C0	C1	C2	C3	C4	C5	C6	C7
I.1	0.9132							
I.2	1.1240							
I.3	3.6928							
II.1	1.0206	0.7029	0.5361	0.1222	0.0690			
II.2								
III.1	0.5103	0.3515	0.2680	0.0611	0.0345			

Shaded areas indicate payload shipping categories currently not addressed.

TABLE 6-1

ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT PER OVERPACK BIN
(watts/bin)

Waste Matl Type	D - Overpacked Bin							
	D0	D1	D2	D3	D4	D5	D6	DM
I.1			0.3922					
I.2			0.4827					
I.3			1.5689					
II.1			0.4271					
II.2								
III.1			0.2135					

Shaded areas indicate payload shipping categories currently not addressed.

TABLE 6-2

ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT PER TRUPACT-II
(watts/TRUPACT-II)

Waste Matl Type	A - Drum							
	A0	A1	A2	A3	A4	A5	A6	AM
I.1	2.9840	2.9158	2.2316	0.6524				
I.2	3.5504	3.0968	2.7168	0.8022	0.5852			
I.3	11.5374	10.0646	8.9250	2.3082	1.2026			
II.1	3.1514	2.5936	1.2166	0.7854	0.5796	0.4592	0.3808	
II.2								40.0000
III.1	1.9764	1.3468	0.6076	0.3920	0.2898	0.2296	0.1904	

Waste Matl Type	B - Overpacked Drums							
	B0	B1	B2	B3	B4	B5	B6	BM
I.1	1.1656	1.0560	0.9656	0.3408				
I.2	1.4344	1.3000	1.1888	0.4192	0.3128			
I.3	4.6616	4.2248	3.8624	1.3624	1.0176			
II.1	1.3688	1.2128	0.6192	0.4160	0.3136	0.2512	0.2096	
II.2								40.0000
III.1	0.6848	0.6064	0.3096	0.2080	0.1568	0.1256	0.1048	

Waste Matl Type	C - STANDARD WASTE BOX							
	C0	C1	C2	C3	C4	C5	C6	CM
I.1	1.8264							
I.2	2.2480							
I.3	7.3056							
II.1	2.0412	1.4058	1.0722	0.2444	0.1380			
II.2								
III.1	1.0206	0.7030	0.5360	0.1222	0.0690			

Shaded areas indicate payload shipping categories not currently addressed.

TABLE 6-2

ANALYTICAL SHIPPING CATEGORY WATTAGE LIMIT PER TRUPACT-II
(watts/TRUPACT-II)

Waste Matl Type	D - Overpacked Bins							
	D0	D1	D2	D3	D4	D5	D6	DM
I.1			0.7844					
I.2			0.9694					
I.3			3.1378					
II.1			0.8942					
II.2								
III.1			0.4270					

Shaded areas indicate payload shipping categories not currently addressed.

TABLE 6-3

TEST SHIPPING CATEGORY WATTAGE LIMIT PER DRUM^a
(watts/drum)

Waste Mat Type	A - DRUM							
	10T	11T	12T	13T	14T	15T	16T	17T
1.1	10	10	10	10				
1.2	10	10	10	10	10			
1.3	10	10	10	10	10			
1.1	20	20	20	20	20	20	20	
1.2								
1.1	20	20	20	20	20	20	20	
1.1		?	?					

TEST SHIPPING CATEGORY WATTAGE LIMIT^a
PER OVERPACKED DRUM
(watts/drum)

Waste Mat Type	B - Overpacked Drums							
	20T	21T	22T	23T	24T	25T	26T	27T
1.1	10	10	10	10				
1.2	10	10	10	10	10			
1.3	10	10	10	10	10			
1.1	20	20	20	20	20	20	20	
1.2								
1.1	20	20	20	20	20	20	20	
1.1		?	?					

^a Shaded areas indicate payload shipping categories not currently addressed.

Also the limit for the total TRUPACT-II payload.

TABLE 7-1
ASPIRATION TIMES BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS) ^a				
		I.A0	I.A1	I.A2	I.A3	I.A4
1	0.083	0	0	0	0	0
2	0.167	92	92	91	0	0
3	0.250	115	117	120	11	2
4	0.333	128	131	135	37	19
5	0.417	137	141	146	101	35
6	0.500	144	149	154	192	56
7	0.583	150	155	160	239	111
8	0.667	154	160	166	270	219
9	0.750	159	164	171	294	281
10	0.833	162	168	175	312	323
11	0.917	166	172	178	328	355
12	1.000	169	175	182	341	380
14	1.167	174	180	188	363	419
16	1.333	178	185	193	380	449
18	1.500	182	189	197	395	473
20	1.667	186	193	201	407	493
22	1.833	189	196	204	418	510
24	2.000	192	199	207	428	526
26	2.167	194	202	210	437	539
28	2.333	197	205	213	445	551
30	2.500	199	207	215	452	562
32	2.667	201	209	218	459	572
34	2.833	201	211	220	465	582
36	3.000	201	211	222	471	590
38	3.167	201	211	222	477	598
40	3.333	201	211	222	482	606
42	3.500	201	211	222	487	613
44	3.667	201	211	222	491	620
46	3.833	201	211	222	496	626
48	4.000	201	211	222	500	633
50	4.167	201	211	222	504	638
52	4.333	201	211	222	508	644
54	4.500	201	211	222	512	649
56	4.667	201	211	222	515	654
58	4.833	201	211	222	519	659
60	5.000	201	211	222	522	664
66	5.500	201	211	222	531	677
72	6.000	201	211	222	540	690
78	6.500	201	211	222	548	701
84	7.000	201	211	222	555	711
90	7.500	201	211	222	561	720
96	8.000	201	211	222	568	729
102	8.500	201	211	222	568	737
108	9.000	201	211	222	568	745

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 7-1
ASPIRATION TIMES BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS) ^a				
		I.A0	I.A1	I.A2	I.A3	I.A4
114	9.500	201	211	222	568	753
120	10.000	201	211	222	568	760
132	11.000	201	211	222	568	760
144	12.000	201	211	222	568	760
156	13.000	201	211	222	568	760
168	14.000	201	211	222	568	760
180	15.000	201	211	222	568	760
192	16.000	201	211	222	568	760
204	17.000	201	211	222	568	760
216	18.000	201	211	222	568	760
228	19.000	201	211	222	568	760
240	20.000	201	211	222	568	760

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 7-2
ASPIRATION TIME BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS)						
		II.1A0	II.1A1	II.1A2	II.1A3	II.1A4	II.1A5	II.1A6
1	0.083	0	0	0	0	0	0	0
2	0.167	91	44	0	0	0	0	0
3	0.250	134	141	0	0	0	0	0
4	0.333	155	174	2	0	0	0	0
5	0.417	170	193	12	4	2	0	0
6	0.500	180	208	72	9	7	5	3
7	0.583	189	219	259	14	11	8	6
8	0.667	196	229	341	19	13	12	9
9	0.750	202	237	394	27	16	13	12
10	0.833	208	244	434	49	21	17	15
11	0.917	212	250	464	290	24	19	17
12	1.000	217	256	491	427	29	22	19
14	1.167	224	265	533	582	48	27	23
16	1.333	230	273	565	677	454	35	27
18	1.500	236	280	592	749	678	49	34
20	1.667	241	286	615	804	815	423	39
22	1.833	245	292	634	848	913	727	51
24	2.000	249	297	651	887	991	910	345
26	2.167	253	301	666	919	1055	1041	739
28	2.333	256	306	680	948	1110	1144	971
30	2.500	260	310	693	975	1157	1228	1136
32	2.667	262	313	706	997	1199	1298	1264
34	2.833	265	317	717	1021	1236	1359	1369
36	3.000	268	320	727	1041	1270	1414	1457
38	3.167	270	323	737	1059	1298	1463	1531
40	3.333	272	326	745	1074	1329	1507	1600
42	3.500	275	328	754	1091	1355	1547	1660
44	3.667	277	331	762	1107	1379	1582	1715
46	3.833	279	333	769	1122	1402	1618	1765
48	4.000	279	336	777	1135	1424	1650	1810
50	4.167	279	338	784	1147	1444	1680	1851
52	4.333	279	340	791	1159	1463	1708	1892
54	4.500	279	340	797	1171	1479	1734	1929
56	4.667	279	340	803	1182	1498	1759	1963
58	4.833	279	340	809	1192	1515	1783	1996
60	5.000	279	340	815	1203	1530	1805	2027
66	5.500	279	340	831	1232	1572	1865	2110
72	6.000	279	340	845	1258	1613	1919	2183
78	6.500	279	340	858	1282	1646	1970	2247
84	7.000	279	340	870	1303	1678	2014	2306
90	7.500	279	340	881	1323	1709	2055	2358
96	8.000	279	340	892	1341	1737	2092	2407
102	8.500	279	340	892	1359	1762	2126	2451
108	9.000	279	340	892	1375	1785	2157	2493
114	9.500	279	340	892	1390	1808	2188	2531
120	10.000	279	340	892	1404	1829	2216	2567
132	11.000	279	340	892	1430	1868	2268	2633

TABLE 7-2
ASPIRATION TIME BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS)						
		II.1A0	II.1A1	II.1A2	II.1A3	II.1A4	II.1A5	II.1A6
144	12.000	279	340	892	1430	1903	2315	2692
156	13.000	279	340	892	1430	1935	2358	2746
168	14.000	279	340	892	1430	1963	2397	2795
180	15.000	279	340	892	1430	1963	2433	2842
192	16.000	279	340	892	1430	1963	2467	2885
204	17.000	279	340	892	1430	1963	2499	2924
216	18.000	279	340	892	1430	1963	2528	2960
228	19.000	279	340	892	1430	1963	2528	2995
240	20.000	279	340	892	1430	1963	2528	3028

TABLE 7-3
ASPIRATION TIME BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS)						
		III.1A0	III.1A1	III.1A2	III.1A3	III.1A4	III.1A5	III.1A6
1	0.083	0	0	0	0	0	0	0
2	0.167	94	73	0	0	0	0	0
3	0.250	130	138	0	0	0	0	0
4	0.333	149	165	9	3	0	0	0
5	0.417	162	182	28	9	6	4	2
6	0.500	172	195	193	16	11	8	6
7	0.583	179	205	285	23	15	12	10
8	0.667	186	213	338	32	20	16	13
9	0.750	191	220	376	60	24	19	17
10	0.833	196	226	406	274	30	23	20
11	0.917	201	232	430	392	36	26	23
12	1.000	205	237	450	468	46	30	25
14	1.167	212	245	483	570	338	39	31
16	1.333	218	252	509	639	571	56	38
18	1.500	223	259	531	691	703	382	46
20	1.667	227	264	550	733	795	653	63
22	1.833	231	269	566	769	865	813	419
24	2.000	235	274	581	799	923	927	721
26	2.167	238	278	594	825	971	1016	907
28	2.333	242	281	605	849	1013	1088	1042
30	2.500	244	285	616	870	1049	1149	1147
32	2.667	247	288	626	890	1082	1202	1234
34	2.833	250	291	635	907	1111	1249	1307
36	3.000	252	294	644	924	1138	1290	1371
38	3.167	254	297	652	939	1163	1328	1427
40	3.333	256	299	660	953	1186	1362	1477
42	3.500	258	302	667	966	1207	1394	1523
44	3.667	258	304	673	979	1227	1423	1565
46	3.833	258	306	680	991	1245	1450	1603
48	4.000	258	309	686	1002	1263	1476	1638
50	4.167	258	309	692	1013	1279	1499	1672
52	4.333	258	309	698	1023	1295	1522	1702
54	4.500	258	309	703	1033	1310	1543	1732
56	4.667	258	309	708	1042	1324	1563	1759
58	4.833	258	309	713	1051	1338	1583	1785
60	5.000	258	309	718	1060	1351	1601	1810
66	5.500	258	309	731	1083	1387	1651	1877
72	6.000	258	309	743	1105	1419	1696	1936
78	6.500	258	309	755	1125	1449	1736	1989
84	7.000	258	309	765	1143	1475	1773	2036
90	7.500	258	309	765	1159	1500	1806	2079
96	8.000	258	309	765	1175	1523	1837	2119
102	8.500	258	309	765	1189	1544	1866	2156
108	9.000	258	309	765	1203	1564	1893	2190
114	9.500	258	309	765	1216	1583	1918	2222
120	10.000	258	309	765	1228	1600	1942	2253

TABLE 7-3
ASPIRATION TIME BASED ON DATE OF DRUM CLOSURE

(MONTHS)	AGE OF WASTE (YEARS)	BY SHIPPING CATEGORY (DAYS)						
		III.1A0	III.1A1	III.1A2	III.1A3	III.1A4	III.1A5	III.1A6
132	11.000	258	309	765	1228	1633	1985	2308
144	12.000	258	309	765	1228	1662	2024	2358
156	13.000	258	309	765	1228	1689	2060	2403
168	14.000	258	309	765	1228	1689	2093	2444
180	15.000	258	309	765	1228	1689	2124	2483
192	16.000	258	309	765	1228	1689	2152	2518
204	17.000	258	309	765	1228	1689	2152	2552
216	18.000	258	309	765	1228	1689	2152	2583
228	19.000	258	309	765	1228	1689	2152	2612

TABLE 8-1

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY ^a				
	I.A0	I.A1	I.A2	I.A3	I.A4
	ASPIRATION TIME (days)				
0.1	33	40	45	22	23
0.2	79	86	91	65	49
0.3	94	101	107	156	90
0.4	103	109	116	207	192
0.5	109	116	123	236	254
0.6	114	121	128	257	292
0.7	117	124	132	273	320
0.8	121	128	135	285	342
0.9	123	131	138	296	359
1	126	133	141	305	374
1.1	128	135	143	313	387
1.2	130	137	145	320	398
1.3	131	139	147	326	408
1.4	133	141	149	332	417
1.5	134	142	150	337	425
1.6	136	144	152	342	432
1.7	137	145	153	347	439
1.8	138	146	154	351	445
1.9	139	147	155	355	451
2	140	148	157	358	457
2.1	141	149	158	362	462
2.2	142	150	159	365	467
2.3	143	151	160	368	472
2.4	144	152	161	371	476
2.5	145	153	162	374	480
2.6	146	154	162	377	484
2.7	146	155	163	379	488
2.8	147	155	164	382	492
2.9	148	156	165	384	495
3	149	157	166	386	499
3.1	149	158	166	389	502
3.2	150	158	167	391	505
3.3	150	159	168	393	508
3.4	151	159	168	395	511
3.5	152	160	169	397	514
3.6	152	161	169	399	517
3.7	153	161	170	400	519
3.8	153	162	171	402	522
3.9	154	162	171	404	524
4	154	163	172	405	527
4.1	155	163	172	407	529

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 8-1

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY ^a				
	I.A0	I.A1	I.A2	I.A3	I.A4
	ASPIRATION TIME (days)				
4.2	155	164	173	409	532
4.3	156	164	173	410	534
4.4	156	165	174	412	536
4.5	156	165	174	413	538
4.6	157	166	175	415	540
4.7	157	166	175	416	542
4.8	158	166	176	417	544
4.9	158	167	176	419	546
5	158	167	176	420	548
6	162	171	180	432	565
7	165	174	184	442	580
8	168	177	186	450	593
9	170	179	189	458	604
10	172	181	191	465	614
11	174	183	193	471	623
12	175	185	195	477	631
13	177	187	197	482	639
14	178	188	198	487	646
15	180	189	200	491	653
16	181	191	201	496	660
17	182	192	203	500	666
18	183	193	204	504	671
19	184	194	205	507	677
20	185	195	206	511	682
21	186	196	207	514	687
22	187	197	208	518	692
23	188	198	209	521	697
24	189	199	210	524	701
25	190	200	211	527	706
26	191	201	212	530	710
27	191	202	213	532	714
28	192	203	214	535	718
29	193	203	214	538	722
30	193	204	215	540	725
35	197	207	219	552	742
40	199	210	222	562	758

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 8-2
ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY						
	II.1A0	II.1A1	II.1A2	II.1A3	II.1A4	II.1A5	II.1A6
	ASPIRATION TIME (days)						
0.1	52	0	1	1	2	4	5
0.2	112	119	4	7	9	10	12
0.3	132	149	14	13	14	16	17
0.4	143	165	57	18	19	19	20
0.5	152	177	215	24	22	22	22
0.6	158	185	287	34	26	25	26
0.7	164	192	333	106	31	29	28
0.8	168	199	366	287	38	32	31
0.9	171	203	392	389	51	36	35
1	174	207	413	459	221	42	37
1.1	177	210	431	511	393	51	41
1.2	179	214	446	554	506	140	47
1.3	182	216	460	589	590	384	55
1.4	184	219	471	619	657	541	126
1.5	186	223	483	646	711	655	410
1.6	187	224	493	668	758	745	596
1.7	189	226	502	688	798	820	734
1.8	191	228	509	707	834	882	844
1.9	192	230	516	725	865	937	934
2	194	232	525	742	894	985	1011
2.1	195	235	532	756	918	1027	1078
2.2	196	237	538	769	942	1066	1137
2.3	198	237	544	782	964	1101	1189
2.4	199	240	550	794	985	1131	1237
2.5	200	240	555	806	1006	1163	1281
2.6	201	243	560	816	1023	1189	1321
2.7	202	244	565	826	1040	1215	1358
2.8	203	244	570	835	1056	1239	1392
2.9	204	245	574	844	1071	1262	1422
3	205	248	579	853	1086	1285	1454
3.1	206	249	583	861	1099	1305	1481
3.2	207	249	587	869	1112	1324	1508
3.3	208	250	590	877	1125	1342	1533
3.4	209	251	594	885	1137	1360	1558
3.5	209	252	598	892	1148	1377	1582
3.6	210	253	601	899	1159	1393	1603
3.7	211	254	604	905	1170	1407	1624
3.8	212	255	608	911	1180	1423	1644
3.9	212	256	611	917	1190	1437	1663
4	213	258	614	923	1199	1451	1682
4.1	214	258	617	929	1208	1464	1700
4.2	214	258	620	934	1217	1477	1717
4.3	215	259	622	940	1226	1489	1733

TABLE 8-2

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY						
	II.1A0	II.1A1	II.1A2	II.1A3	II.1A4	II.1A5	II.1A6
	ASPIRATION TIME (days)						
4.4	216	260	625	945	1234	1501	1750
4.5	216	261	628	950	1242	1513	1766
4.6	217	261	630	955	1250	1524	1780
4.7	218	262	633	960	1258	1535	1795
4.8	218	263	635	965	1265	1546	1809
4.9	219	264	638	969	1273	1556	1823
5	219	264	640	974	1280	1566	1837
6	224	271	661	1013	1340	1655	1953
7	229	276	679	1046	1394	1727	2047
8	233	281	694	1075	1436	1788	2127
9	236	285	705	1100	1475	1838	2195
10	239	289	718	1123	1509	1887	2256
11	241	293	729	1143	1540	1929	2310
12	244	296	740	1161	1568	1967	2359
13	246	298	750	1178	1594	2002	2404
14	248	301	756	1194	1617	2035	2446
15	250	302	764	1208	1639	2065	2484
16	252	306	772	1222	1660	2094	2521
17	254	308	779	1235	1680	2120	2555
18	255	310	785	1247	1698	2145	2587
19	257	312	791	1258	1715	2169	2618
20	258	312	797	1269	1732	2192	2647
21	260	314	803	1280	1748	2214	2674
22	261	317	808	1290	1763	2234	2701
23	262	317	813	1300	1778	2254	2726
24	263	320	818	1309	1792	2273	2750
25	264	320	823	1318	1805	2291	2773
26	266	323	828	1327	1818	2309	2795
27	267	323	832	1335	1830	2326	2816
28	268	324	837	1343	1842	2342	2837

TABLE 8-3

ASPIRATION TIMES BASED ON HEAD SPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY						III.1A6
	III.1A0	III.1A1	III.1A2	III.1A3	III.1A4	III.1A5	
	ASPIRATION TIME (days)						
0.1	56	23	0	4	6	8	9
0.2	107	116	12	13	15	16	17
0.3	129	141	32	21	21	21	22
0.4	135	155	169	29	26	26	26
0.5	143	164	246	41	32	30	30
0.6	149	172	291	137	39	35	34
0.7	153	178	323	284	49	40	38
0.8	157	183	346	367	99	46	42
0.9	161	187	366	425	302	56	47
1.0	164	191	382	469	422	99	54
1.1	166	194	395	504	505	333	65
1.2	169	197	407	533	568	479	161
1.3	171	200	418	558	619	583	403
1.4	173	203	427	580	662	664	561
1.5	175	205	436	599	698	729	678
1.6	176	207	444	616	730	784	771
1.7	178	209	451	632	758	831	847
1.8	180	211	458	646	784	873	912
1.9	181	213	464	659	807	909	968
2.0	182	214	470	672	828	943	1018
2.1	184	216	475	683	847	973	1062
2.2	185	217	480	693	865	1000	1102
2.3	186	219	485	703	881	1026	1139
2.4	187	220	490	713	897	1049	1172
2.5	188	221	494	721	912	1071	1203
2.6	189	223	498	730	925	1092	1232
2.7	190	224	502	738	938	1111	1259
2.8	191	225	506	745	951	1129	1284
2.9	192	226	510	752	962	1146	1307
3	193	227	513	759	973	1163	1330
3.1	194	228	516	766	984	1178	1351
3.2	194	229	520	772	994	1193	1371
3.3	195	230	523	778	1004	1207	1390
3.4	196	231	526	784	1013	1220	1409
3.5	197	232	529	790	1022	1233	1426
3.6	197	233	532	795	1031	1246	1443
3.7	198	233	534	801	1039	1258	1459
3.8	199	234	537	806	1047	1269	1474
3.9	199	235	539	811	1055	1280	1489
4	200	236	542	815	1063	1291	1503
4.1	201	237	544	820	1070	1302	1517
4.2	201	237	547	825	1077	1312	1531
4.3	202	238	549	829	1084	1321	1544
4.4	202	239	551	833	1091	1331	1556
4.5	203	239	554	837	1097	1340	1568

TABLE 8-3

ASPIRATION TIMES BASED ON HEAD SPACE GAS SAMPLING AT TIME OF VENTING

Mol % H ₂ in head space	SHIPPING CATEGORY						
	III.1A0	III.1A1	III.1A2	III.1A3	III.1A4	III.1A5	III.1A6
	ASPIRATION TIME (days)						
4.6	203	240	556	841	1103	1349	1580
4.7	204	241	558	845	1109	1358	1592
4.8	204	241	560	849	1115	1366	1603
4.9	205	242	562	853	1121	1374	1614
5	205	243	564	857	1127	1382	1624
6	210	248	581	889	1178	1453	1717
7	214	253	596	917	1219	1511	1793
8	217	257	608	940	1255	1561	1857
9	220	260	619	961	1286	1604	1913
10	223	264	629	979	1314	1642	1962
11	225	266	638	995	1339	1677	2006
12	227	269	647	1010	1362	1708	2047
13	229	272	654	1024	1383	1737	2084
14	231	274	661	1037	1403	1764	2119
15	233	276	668	1049	1421	1789	2151
16	235	278	674	1061	1438	1812	2181
17	236	280	680	1071	1454	1834	2209
18	238	282	685	1082	1470	1855	2236
19	239	283	690	1091	1484	1875	2261
20	240	285	695	1100	1498	1894	2285
21	241	286	700	1109	1511	1912	2308
22	243	288	705	1118	1524	1929	2330
23	244	289	709	1126	1536	1945	2351
24	245	291	713	1133	1548	1961	2371
25	246	292	717	1141	1559	1977	2390
26	247	293	721	1148	1570	1991	2409
27	248	294	725	1155	1580	2005	2427
28	249	296	729	1162	1591	2019	2444
29	250	297	732	1168	1600	2032	2460
30	251	298	736	1175	1610	2045	2477
35	255	303	752	1204	1653	2104	2550
40	259	307	766	1230	1692	2155	2615

TABLE 9-1

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

mol %	I.A0 ^a	mol %	I.A1 ^a	mol %	I.A2 ^a	mol %	I.A3 ^a	mol %	I.A4 ^a
0.100	0	0.100	0	0.100	0	0.100	0	0.100	0
0.200	0	0.200	0	0.200	0	0.200	0	0.200	0
0.300	0	0.300	0	0.300	0	0.300	0	0.300	0
0.400	0	0.400	0	0.400	0	0.400	0	0.432	0
0.500	0	0.500	0	0.500	0	0.591	0	0.500	6
0.600	0	0.600	0	0.600	0	0.600	1	0.600	13
0.700	0	0.700	0	0.700	0	0.700	8	0.700	19
0.800	0	0.800	0	0.800	0	0.800	15	0.800	26
0.900	0	0.900	0	0.900	0	0.900	21	0.900	32
1.000	0	1.000	0	1.000	0	1.000	28	1.000	38
1.100	0	1.100	0	1.100	0	1.100	36	1.100	45
1.200	0	1.200	0	1.200	0	1.200	45	1.200	53
1.300	0	1.300	0	1.300	0	1.300	56	1.300	64
1.400	0	1.400	0	1.400	0	1.400	74	1.400	78
1.500	0	1.500	0	1.500	0	1.500	100	1.500	104
1.600	0	1.600	0	1.600	0	1.600	130	1.600	146
1.700	0	1.700	0	1.700	0	1.700	155	1.700	185
1.800	0	1.800	0	1.800	0	1.800	175	1.800	215
1.900	0	1.900	0	1.900	0	1.900	191	1.900	240
2.000	0	2.000	0	2.024	0	2.000	205	2.000	261
2.100	0	2.100	0	2.100	36	2.100	218	2.100	278
2.200	0	2.282	0	2.200	50	2.200	228	2.200	294
2.300	0	2.300	16	2.300	60	2.300	238	2.300	308
2.400	0	2.400	34	2.400	68	2.400	246	2.400	320
2.500	0	2.500	45	2.500	74	2.500	254	2.500	331
2.616	0	2.600	54	2.600	79	2.600	261	2.600	342
2.700	17	2.700	60	2.700	83	2.700	268	2.700	351
2.800	30	2.800	66	2.800	87	2.800	274	2.800	360
2.900	39	2.900	71	2.900	91	2.900	280	2.900	368
3.000	46	3.000	75	3.000	94	3.000	286	3.000	376
3.100	51	3.100	78	3.100	97	3.100	291	3.100	383
3.200	56	3.200	81	3.200	100	3.200	296	3.200	390
3.300	60	3.300	84	3.300	102	3.300	300	3.300	396
3.400	64	3.400	87	3.400	104	3.400	305	3.400	402
3.500	67	3.500	90	3.500	106	3.500	309	3.500	408
3.600	70	3.600	92	3.600	108	3.600	313	3.600	414
3.700	73	3.700	94	3.700	110	3.700	316	3.700	419
3.800	75	3.800	96	3.800	112	3.800	320	3.800	424
3.900	78	3.900	98	3.900	114	3.900	323	3.900	429
4.000	80	4.000	100	4.000	115	4.000	327	4.000	434
4.100	82	4.100	101	4.100	117	4.100	330	4.100	438
4.200	84	4.200	103	4.200	118	4.200	333	4.200	442
4.300	85	4.300	105	4.300	120	4.300	336	4.300	446
4.400	87	4.400	106	4.400	121	4.400	339	4.400	450
4.500	89	4.500	107	4.500	122	4.500	342	4.500	454
4.600	90	4.600	109	4.600	124	4.600	344	4.600	458
4.700	92	4.700	110	4.700	125	4.700	347	4.700	462

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 9-1

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

^a		^a		^a		^a		^a	
mol %	I.A0	mol %	I.A1	mol %	I.A2	mol %	I.A3	mol %	I.A4
4.800	93	4.800	111	4.800	126	4.800	350	4.800	465
4.900	94	4.900	112	4.900	127	4.900	352	4.900	469
5.000	96	5.000	114	5.000	128	5.000	354	5.000	472
6.000	106	6.000	123	6.000	137	6.000	375	6.000	500
7.000	114	7.000	131	7.000	145	7.000	392	7.000	523
8.000	120	8.000	137	8.000	151	8.000	405	8.000	542
9.000	126	9.000	142	9.000	156	9.000	417	9.000	558
10.000	130	10.000	146	10.000	160	10.000	427	10.000	572
11.000	134	11.000	150	11.000	164	11.000	436	11.000	585
12.000	137	12.000	154	12.000	167	12.000	444	12.000	596
13.000	141	13.000	157	13.000	170	13.000	452	13.000	606
14.000	143	14.000	160	14.000	173	14.000	458	14.000	616
15.000	146	15.000	162	15.000	176	15.000	465	15.000	624
16.000	148	16.000	165	16.000	178	16.000	470	16.000	632
17.000	151	17.000	167	17.000	180	17.000	476	17.000	640
18.000	153	18.000	169	18.000	182	18.000	481	18.000	647
19.000	155	19.000	171	19.000	184	19.000	486	19.000	654
20.000	157	20.000	173	20.000	186	20.000	490	20.000	660
21.000	158	21.000	174	21.000	188	21.000	495	21.000	666
22.000	160	22.000	176	22.000	189	22.000	499	22.000	672
23.000	162	23.000	178	23.000	191	23.000	503	23.000	678
24.000	163	24.000	179	24.000	192	24.000	506	24.000	683
25.000	164	25.000	181	25.000	194	25.000	510	25.000	688
26.000	166	26.000	182	26.000	195	26.000	513	26.000	693
27.000	167	27.000	183	27.000	197	27.000	517	27.000	698
28.000	168	28.000	185	28.000	198	28.000	520	28.000	702
29.000	170	29.000	186	29.000	199	29.000	523	29.000	707
30.000	171	30.000	187	30.000	200	30.000	526	30.000	711
35.000	176	35.000	192	35.000	205	35.000	540	35.000	730
40.000	181	40.000	197	40.000	210	40.000	551	40.000	747
45.000	184	45.000	200	45.000	213	45.000	562	45.000	762
50.000	188	50.000	204	50.000	217	50.000	571	50.000	776
55.000	191	55.000	207	55.000	220	55.000	580	55.000	788
60.000	194	60.000	210	60.000	223	60.000	588	60.000	799
65.000	197	65.000	212	65.000	225	65.000	595	65.000	809
70.000	199	70.000	215	70.000	228	70.000	602	70.000	819

^a Aspiration times for Waste Material Types I.1, I.2 and I.3 are identical.

TABLE 9-2

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

mol %	11.1A0	mol %	11.1A1	mol %	11.1A2	mol %	11.1A3	mol %	11.1A4	mol %	11.1A5	mol %	11.1A6
0.100	0	0.100	0	0.100	0	0.100	0	0.100	0	0.100	0	0.100	0
0.200	0	0.200	0	0.200	0	0.200	0	0.200	0	0.200	0	0.265	0
0.300	0	0.300	0	0.300	0	0.300	0	0.300	0	0.320	0	0.300	2
0.400	0	0.400	0	0.400	0	0.400	0	0.403	0	0.400	4	0.400	6
0.500	0	0.500	0	0.500	0	0.546	0	0.500	4	0.500	8	0.500	10
0.600	0	0.600	0	0.600	0	0.600	2	0.600	8	0.600	11	0.600	13
0.700	0	0.700	0	0.700	0	0.700	5	0.700	9	0.700	12	0.700	16
0.800	0	0.800	0	0.846	0	0.800	7	0.800	13	0.800	16	0.800	18
0.900	0	0.900	0	0.900	2	0.900	10	0.900	14	0.900	18	0.900	20
1.000	0	1.000	0	1.000	5	1.000	13	1.000	16	1.000	20	1.000	21
1.100	0	1.100	0	1.100	9	1.100	15	1.100	20	1.100	22	1.100	24
1.200	0	1.200	0	1.200	13	1.200	18	1.200	21	1.200	23	1.200	26
1.300	0	1.300	0	1.300	19	1.300	22	1.300	24	1.300	26	1.300	27
1.400	0	1.400	0	1.400	31	1.400	25	1.400	26	1.400	28	1.400	31
1.500	0	1.500	0	1.500	109	1.500	30	1.500	30	1.500	31	1.500	33
1.600	0	1.600	0	1.600	183	1.600	38	1.600	33	1.600	33	1.600	35
1.700	0	1.700	0	1.700	232	1.700	71	1.700	39	1.700	37	1.700	37
1.800	0	1.874	0	1.800	269	1.800	212	1.800	47	1.800	42	1.800	40
1.900	0	1.900	30	1.900	299	1.900	304	1.900	97	1.900	47	1.900	44
2.000	0	2.000	62	2.000	323	2.000	371	2.000	275	2.000	59	2.000	49
2.192	0	2.100	82	2.100	344	2.100	424	2.100	395	2.100	200	2.100	57
2.200	4	2.200	96	2.200	362	2.200	467	2.200	483	2.200	385	2.200	122
2.300	33	2.300	107	2.300	378	2.300	503	2.300	554	2.300	517	2.300	374
2.400	49	2.400	116	2.400	393	2.400	535	2.400	612	2.400	619	2.400	547
2.500	61	2.500	124	2.500	406	2.500	563	2.500	662	2.500	701	2.500	680
2.600	71	2.600	131	2.600	417	2.600	588	2.600	706	2.600	771	2.600	786
2.700	78	2.700	137	2.700	430	2.700	611	2.700	744	2.700	831	2.700	875
2.800	85	2.800	142	2.800	439	2.800	631	2.800	778	2.800	884	2.800	952
2.900	90	2.900	147	2.900	448	2.900	648	2.900	810	2.900	931	2.900	1019
3.000	95	3.000	151	3.000	457	3.000	667	3.000	838	3.000	971	3.000	1078
3.100	100	3.100	155	3.100	465	3.100	684	3.100	864	3.100	1010	3.100	1132
3.200	104	3.200	159	3.200	473	3.200	700	3.200	890	3.200	1047	3.200	1180
3.300	108	3.300	163	3.300	480	3.300	715	3.300	910	3.300	1080	3.300	1225
3.400	111	3.400	166	3.400	487	3.400	726	3.400	930	3.400	1110	3.400	1267
3.500	114	3.500	169	3.500	494	3.500	739	3.500	950	3.500	1139	3.500	1303
3.600	117	3.600	172	3.600	501	3.600	751	3.600	968	3.600	1163	3.600	1340
3.700	120	3.700	175	3.700	506	3.700	762	3.700	986	3.700	1188	3.700	1373
3.800	123	3.800	178	3.800	511	3.800	773	3.800	1003	3.800	1213	3.800	1404
3.900	125	3.900	180	3.900	516	3.900	783	3.900	1019	3.900	1236	3.900	1431
4.000	127	4.000	183	4.000	523	4.000	793	4.000	1035	4.000	1257	4.000	1459
4.100	130	4.100	185	4.100	528	4.100	802	4.100	1049	4.100	1278	4.100	1486
4.200	132	4.200	187	4.200	532	4.200	811	4.200	1063	4.200	1298	4.200	1512
4.300	134	4.300	189	4.300	537	4.300	822	4.300	1077	4.300	1316	4.300	1536
4.400	136	4.400	191	4.400	542	4.400	830	4.400	1090	4.400	1334	4.400	1559
4.500	137	4.500	193	4.500	546	4.500	838	4.500	1102	4.500	1351	4.500	1582
4.600	139	4.600	195	4.600	550	4.600	845	4.600	1114	4.600	1367	4.600	1603
4.700	141	4.700	197	4.700	554	4.700	852	4.700	1125	4.700	1380	4.700	1624
4.800	142	4.800	199	4.800	558	4.800	859	4.800	1136	4.800	1395	4.800	1643
4.900	144	4.900	200	4.900	562	4.900	865	4.900	1147	4.900	1412	4.900	1662
5.000	145	5.000	202	5.000	566	5.000	872	5.000	1157	5.000	1426	5.000	1680

TABLE 9-2

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

mol % 11.1A0	mol % 11.1A1	mol % 11.1A2	mol % 11.1A3	mol % 11.1A4	mol % 11.1A5	mol % 11.1A6							
6.000	158	6.000	216	6.000	598	6.000	930	6.000	1242	6.000	1540	6.000	1830
7.000	168	7.000	226	7.000	623	7.000	975	7.000	1307	7.000	1633	7.000	1947
8.000	176	8.000	237	8.000	644	8.000	1010	8.000	1365	8.000	1708	8.000	2042
9.000	182	9.000	243	9.000	662	9.000	1043	9.000	1411	9.000	1771	9.000	2122
10.000	188	10.000	250	10.000	678	10.000	1073	10.000	1452	10.000	1826	10.000	2192
11.000	193	11.000	256	11.000	692	11.000	1096	11.000	1488	11.000	1875	11.000	2254
12.000	197	12.000	261	12.000	706	12.000	1119	12.000	1521	12.000	1918	12.000	2309
13.000	202	13.000	267	13.000	716	13.000	1139	13.000	1549	13.000	1956	13.000	2359
14.000	205	14.000	271	14.000	726	14.000	1157	14.000	1577	14.000	1995	14.000	2404
15.000	209	15.000	276	15.000	736	15.000	1174	15.000	1604	15.000	2028	15.000	2448
16.000	212	16.000	280	16.000	745	16.000	1190	16.000	1626	16.000	2059	16.000	2487
17.000	215	17.000	284	17.000	753	17.000	1205	17.000	1648	17.000	2088	17.000	2524
18.000	218	18.000	287	18.000	761	18.000	1219	18.000	1668	18.000	2116	18.000	2558
19.000	221	19.000	290	19.000	768	19.000	1232	19.000	1687	19.000	2142	19.000	2591
20.000	224	20.000	293	20.000	775	20.000	1244	20.000	1706	20.000	2166	20.000	2622
21.000	226	21.000	296	21.000	782	21.000	1256	21.000	1723	21.000	2189	21.000	2651
22.000	229	22.000	299	22.000	788	22.000	1267	22.000	1740	22.000	2211	22.000	2679
23.000	231	23.000	300	23.000	794	23.000	1278	23.000	1756	23.000	2233	23.000	2705
24.000	233	24.000	302	24.000	800	24.000	1288	24.000	1771	24.000	2253	24.000	2731
25.000	235	25.000	306	25.000	806	25.000	1298	25.000	1785	25.000	2272	25.000	2755
26.000	237	26.000	308	26.000	811	26.000	1308	26.000	1799	26.000	2291	26.000	2778
27.000	239	27.000	309	27.000	816	27.000	1317	27.000	1813	27.000	2309	27.000	2801
28.000	241	28.000	312	28.000	821	28.000	1325	28.000	1825	28.000	2326	28.000	2822
29.000	242	29.000	312	29.000	826	29.000	1334	29.000	1838	29.000	2342	29.000	2843
30.000	244	30.000	314	30.000	831	30.000	1342	30.000	1850	30.000	2359	30.000	2863
35.000	250	35.000	324	35.000	852	35.000	1380	35.000	1904	35.000	2431	35.000	2953
40.000	254	40.000	330	40.000	870	40.000	1412	40.000	1953	40.000	2495	40.000	3033
45.000	263	45.000	335	45.000	886	45.000	1441	45.000	1995	45.000	2550	45.000	3102
50.000	266	50.000	339	50.000	901	50.000	1467	50.000	2033	50.000	2600	50.000	3164
55.000	271	55.000	343	55.000	914	55.000	1491	55.000	2067	55.000	2645	55.000	3219
60.000	275	60.000	346	60.000	927	60.000	1513	60.000	2098	60.000	2686	60.000	3270
65.000	278	65.000	351	65.000	938	65.000	1533	65.000	2127	65.000	2724	65.000	3317
70.000	281	70.000	354	70.000	948	70.000	1551	70.000	2154	70.000	2759	70.000	3360

TABLE 9-3

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

mol % III.1A0	mol % III.1A1	mol % III.1A2	mol % III.1A3	mol % III.1A4	mol % III.1A5	mol % III.1A6
0.100	0	0.100	0	0.100	0	0.100
0.200	0	0.200	0	0.200	0	0.265
0.300	0	0.300	0	0.300	0	0.300
0.400	0	0.400	0	0.400	0	0.400
0.500	0	0.500	0	0.544	4	0.500
0.600	0	0.600	0	0.600	8	0.600
0.700	0	0.700	0	0.700	11	0.700
0.800	0	0.800	0	0.844	13	0.800
0.900	0	0.900	2	0.900	16	0.900
1.000	0	1.000	5	1.000	19	1.000
1.100	0	1.100	8	1.100	21	1.100
1.200	0	1.200	12	1.200	24	1.200
1.300	0	1.300	16	1.300	27	1.300
1.400	0	1.400	21	1.400	30	1.400
1.500	0	1.500	29	1.500	33	1.500
1.600	0	1.600	53	1.600	37	1.600
1.700	0	1.700	124	1.700	44	1.700
1.800	0	1.874	174	1.800	48	1.800
1.900	0	1.900	29	1.900	59	1.900
2.000	0	2.000	57	2.000	132	2.000
2.192	0	2.100	75	2.100	266	2.100
2.200	5	2.200	88	2.200	359	2.200
2.300	30	2.300	98	2.300	430	2.300
2.400	44	2.400	104	2.400	487	2.400
2.500	57	2.500	113	2.500	535	2.500
2.600	66	2.600	119	2.600	577	2.600
2.700	73	2.700	124	2.700	613	2.700
2.800	79	2.800	129	2.800	645	2.800
2.900	84	2.900	133	2.900	674	2.900
3.000	89	3.000	137	3.000	700	3.000
3.100	93	3.100	141	3.100	724	3.100
3.200	97	3.200	145	3.200	746	3.200
3.300	100	3.300	148	3.300	767	3.300
3.400	103	3.400	151	3.400	786	3.400
3.500	106	3.500	154	3.500	804	3.500
3.600	109	3.600	156	3.600	820	3.600
3.700	112	3.700	159	3.700	836	3.700
3.800	114	3.800	161	3.800	851	3.800
3.900	116	3.900	163	3.900	865	3.900
4.000	118	4.000	166	4.000	879	4.000
4.100	121	4.100	168	4.100	892	4.100
4.200	122	4.200	170	4.200	904	4.200
4.300	124	4.300	172	4.300	916	4.300
4.400	126	4.400	173	4.400	927	4.400
4.500	128	4.500	175	4.500	938	4.500
4.600	129	4.600	177	4.600	948	4.600
4.700	131	4.700	179	4.700	958	4.700
4.800	132	4.800	180	4.800	968	4.800
4.900	134	4.900	182	4.900	977	4.900
5.000	135	5.000	183	5.000	986	5.000

TABLE 9-3

ASPIRATION TIMES BASED ON HEADSPACE GAS SAMPLING DURING ASPIRATION

mol % III.1A0		mol % III.1A1		mol % III.1A2		mol % III.1A3		mol % III.1A4		mol % III.1A5		mol % III.1A6	
6.000	147	6.000	196	6.000	509	6.000	793	6.000	1063	6.000	1324	6.000	1577
7.000	156	7.000	206	7.000	532	7.000	833	7.000	1122	7.000	1404	7.000	1677
8.000	164	8.000	214	8.000	551	8.000	867	8.000	1171	8.000	1468	8.000	1759
9.000	170	9.000	221	9.000	568	9.000	895	9.000	1212	9.000	1523	9.000	1828
10.000	175	10.000	227	10.000	582	10.000	920	10.000	1247	10.000	1570	10.000	1887
11.000	180	11.000	233	11.000	595	11.000	941	11.000	1279	11.000	1612	11.000	1940
12.000	185	12.000	238	12.000	606	12.000	961	12.000	1307	12.000	1650	12.000	1987
13.000	188	13.000	242	13.000	616	13.000	978	13.000	1333	13.000	1684	13.000	2030
14.000	192	14.000	246	14.000	626	14.000	995	14.000	1356	14.000	1715	14.000	2070
15.000	195	15.000	250	15.000	634	15.000	1010	15.000	1378	15.000	1744	15.000	2106
16.000	198	16.000	253	16.000	642	16.000	1023	16.000	1398	16.000	1771	16.000	2139
17.000	201	17.000	256	17.000	650	17.000	1036	17.000	1417	17.000	1796	17.000	2171
18.000	204	18.000	259	18.000	657	18.000	1048	18.000	1435	18.000	1820	18.000	2200
19.000	206	19.000	262	19.000	663	19.000	1060	19.000	1451	19.000	1842	19.000	2228
20.000	208	20.000	264	20.000	669	20.000	1071	20.000	1467	20.000	1863	20.000	2254
21.000	210	21.000	267	21.000	675	21.000	1081	21.000	1482	21.000	1883	21.000	2279
22.000	213	22.000	269	22.000	681	22.000	1091	22.000	1496	22.000	1902	22.000	2303
23.000	215	23.000	271	23.000	686	23.000	1100	23.000	1510	23.000	1920	23.000	2326
24.000	216	24.000	273	24.000	691	24.000	1109	24.000	1523	24.000	1937	24.000	2347
25.000	218	25.000	275	25.000	696	25.000	1118	25.000	1535	25.000	1953	25.000	2368
26.000	220	26.000	277	26.000	701	26.000	1126	26.000	1547	26.000	1969	26.000	2388
27.000	222	27.000	279	27.000	706	27.000	1134	27.000	1559	27.000	1985	27.000	2407
28.000	223	28.000	281	28.000	710	28.000	1141	28.000	1570	28.000	1999	28.000	2425
29.000	225	29.000	282	29.000	714	29.000	1149	29.000	1581	29.000	2014	29.000	2443
30.000	226	30.000	284	30.000	718	30.000	1156	30.000	1591	30.000	2027	30.000	2460
35.000	233	35.000	291	35.000	737	35.000	1188	35.000	1638	35.000	2090	35.000	2538
40.000	238	40.000	297	40.000	753	40.000	1216	40.000	1679	40.000	2144	40.000	2605
45.000	243	45.000	302	45.000	767	45.000	1241	45.000	1715	45.000	2191	45.000	2664
50.000	248	50.000	306	50.000	780	50.000	1264	50.000	1748	50.000	2234	50.000	2717
55.000	252	55.000	310	55.000	791	55.000	1284	55.000	1777	55.000	2272	55.000	2764
60.000	255	60.000	314	60.000	802	60.000	1303	60.000	1804	60.000	2307	60.000	2808
65.000	259	65.000	318	65.000	812	65.000	1320	65.000	1829	65.000	2340	65.000	2848
70.000	262	70.000	321	70.000	821	70.000	1336	70.000	1851	70.000	2370	70.000	2885

TABLE 10

Terminology and Notation

<u>Assay:</u>	The observation of spontaneous or stimulated nuclear radiations, interpreted to estimate the content of one or more radionuclides in a material.
<u>Bin:</u>	A box with a rectangular configuration that will be used for experimental waste studies at WIPP. The bin is fitted with at least two carbon composite filters and overpacked in a Standard Waste Box.
<u>Carbon Composite Filter:</u>	A high-efficiency particulate air filter designed to fit TRU payload containers to prevent buildup of gas and pressure.
<u>Contact-Handled TRU Waste:</u>	Transuranic waste materials that are packaged in such a way that the dose rate at the surface of the waste package is not greater than 200 mRem/hr.
<u>Content Code:</u>	A uniform system applied to waste forms to group those with similar characteristics for purposes of shipment in TRUPACT-II. Content code is not to be confused with Item Description Code (IDC).
<u>Chemical Compatibility:</u>	Assessing the properties of all potential chemicals in a payload container (>1 weight percent), there must be no adverse safety or health hazards produced as a result of any mixtures that could occur.
<u>Combustible Materials:</u>	Organic materials that are dominantly cellulosic (e.g., cotton, paper, cloth, wood, etc.) but also includes plastics.

TABLE 10

<u>Compressed Gas:</u>	Compressed gases are those materials defined as such by 49 CFR 173, Subpart G.
<u>Corrosive Materials:</u>	Corrosive materials are those defined as such by 49 CFR 261.22 (a)(1).
<u>Decay Heat:</u>	Heat produced by radioactive emissions that is absorbed in the surrounding material.
<u>Explosive Materials:</u>	Explosive materials are those defined as such by 49 CFR 173, Subpart C.
<u>Free Liquid:</u>	Liquid that is not sorbed on or in a host material such that it could spill or drain from its container.
<u>G Value:</u>	The number of molecules of gas species produce per 100 electron volts of decay energy absorbed by the waste.
<u>Germanium Counter:</u>	An assay device with high purity germanium as the detection element.
<u>Glovebox:</u>	A sealed box with windows and rubber gloves attached to parts such that an operator's hands and arms are protected as he works inside the box.
<u>Immobilized Materials:</u>	Materials that are fixed in a matrix such as glass, ceramic, cement, concrete, etc.
<u>Item Description Code:</u>	A numerical code applied to individual waste forms (including source if applicable) to provide identification which is used for physical segregation and computerized record keeping and tracking.

TABLE 10

<u>NaI Drum Counter:</u>	Assay performed on drums using sodium iodide crystals as the measurement device in the detector.
<u>Newly Generated Waste:</u>	Waste generated to meet the WIPP WAC.
<u>Nondestructive Assay:</u>	Assay methods for waste items that do not affect the physical or chemical form of the material.
<u>Nondestructive Examination:</u>	Methods which allow examination of items without affecting the chemical or physical forms of these items. An example is real-time radiography (RTR) which provides visible evidence of the contents of payload containers.
<u>Oil-Dri:</u>	A trade name for a basically clay material absorbent.
<u>Overpack:</u>	An enclosure that is used to provide protection or convenience in handling of a package.
<u>Passive-Active Neutron Counter:</u>	A device that measures the radiations that occur spontaneously or naturally (passive) and those that are induced by external irradiation (active) and comparing the results of both measurements.
<u>Payload Containers:</u>	Fifty-five gallon drums and Standard Waste Boxes which are filled with wastes. They can also be called waste packages.
<u>Polyethylene Liners:</u>	Rigid drum liners molded from high-density polyethylene, typically with a wall thickness of about 0.09 inches (90 mils). The liner generally has a snap-on cover of the same material.

TABLE 10

<u>Pressurized Vessels</u> <u>(Containers):</u>	Smaller containers in the payload container such as aerosol cans, which may hold compressed gas.
<u>Pu-239 Fissile Gram</u> <u>Equivalent:</u>	The amount of Pu-239 which would produce the equivalent K_{eff} as that determined for the fissile material in the container (assuming all containers are in an optimally moderated infinite array) is called the Pu-239 fissile gram equivalent.
	U-235 and U-233 and other isotopes shall be calculated as Pu-239 fissile equivalents using ANSI/ANS-8.15-1981.
<u>Pyrophoric Materials:</u>	Pyrophoric materials are defined as those which may ignite spontaneously under the ambient conditions.
<u>Radiochemical Assay:</u>	Assay performed with wet samples in a radiochemical laboratory using separation techniques.
<u>Retrievably Stored</u> <u>Waste:</u>	TRU waste that has been stored in a controlled manner to be readily retrievable at some future time for processing or reshipment, and which was not certified to meet the WAC at the time of generation. All retrievably stored waste was generated in 1970 or later.
<u>Segmented Gamma Scan:</u>	Assay device.
<u>Shipping Category:</u>	A grouping system for CH-TRU waste payload containers which assures incompatible groups are not mixed in the same TRUPACT-II.
<u>Standard Waste Box:</u>	A box with ends designed specifically to fit TRUPACT-II. An SWB is not to be confused with a TRUPACT-I Efficient Box (TEB).

TABLE 10

<u>TRAMPAC:</u>	TRUPACT-II Authorized Methods for Payload Control document developed to show how the all waste parameters are controlled to assure TRUPACT-II payloads meet all of the TRUPACT-II shipping requirements and limits.
<u>TRU Waste:</u>	Transuranic (TRU) waste, for the WIPP, is defined as defense waste contaminated with certain alpha-emitting radionuclides in concentrations greater than 100 nanocuries per gram of waste, as defined by DOE Order 5820.2A.
<u>TRUCON:</u>	TRUPACT-II Content Codes document developed to show wastes characterized and grouped together for controlling the payload in each TRUPACT-II.
<u>Twist and Tape:</u>	A method of bag closure for waste consisting of gathering the neck of the bag, twisting tightly, and wrapping tightly with plastic tape. Often called "horsetail".
<u>Ultrasonic Measurements:</u>	A nondestructive, metal-thickness-gauging device that uses ultrasonic signal reflection measurements. It is used to verify minimum drum wall thickness in locations judged most likely to be corroded if any corrosion is present inside the drum.
<u>Waste Acceptance Criteria:</u>	Criteria developed for the safe disposal of TRU waste in the Waste Isolation Pilot Plant, meeting the very long term disposal requirements of the WIPP underground salt bed.
<u>Waste Certification:</u>	Activities associated with waste processing and records required to certify that the waste meets the WIPP Waste Acceptance Criteria.

TABLE 10

<u>Waste Material Type:</u>	Further divisions of Waste Types based on G (flammable) values (gas generation potential.)
<u>Waste Type:</u>	Waste type refers to physical types of waste such as solidified inorganics, solid inorganics, solidified organics and solid organics.
<u>Waste Package Assembly:</u>	An assembly of waste packages, such as a seven-pack of drums, that is intended to be handled and emplaced in a single unit by the WIPP waste handling system.
<u>Waste Packaging:</u>	The process of filling a payload container with waste and remaining within the controls applied to layers of confinement.

TABLE 11

ACRONYM LIST

Am	Americium
ANL-E	Argonne National Laboratory-East
ASRF	Advanced Size Reduction Facility (Rocky Flats)
BCL	Battelle Columbus Laboratory
CFR	Code of Federal Regulations
CH-TRU	Contact handled transuranic (waste)
CWS	Chemical Warfare Service (filter)
DDW	Decontamination and decommissioning waste
DOE	U. S. Department of Energy
EDTA	Ethylenediaminetetraacetic acid
EPA	Environmental Protection Agency
Ge	Germanium
GE	General Electric
HDPE	High-density polyethylene
HEPA	High-efficiency particulate air (filter)
IDC	Item description code
INEL	Idaho National Engineering Laboratory
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
NDA	Nondestructive assay
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
OTP	Operations Test Procedure (ANL-E)
PAN	Passive-active neutron (counter)
PE	Polyethylene
PFP	Plutonium Finishing Plant (Hanford)
PHA	Pulse height analysis
PPB	Plutonium Processing Building (Mound)
Pu	Plutonium
PUREX	Plutonium-Uranium Extraction (Hanford)
PVC	Polyvinylchloride
R&D	Research and development

TABLE 11

RCRA	Resource Conservation and Recovery Act
RFP	Rocky Flats Plant
RGW	Research generated waste
RH	Richland Hanford
RSWDR	Radioactive Solid Waste Disposal Record
RTR	Real-time radiography
SAR	Safety Analysis Report
SGS	Segmented Gamma Scanner
SIS	Special isotope separation
SRF	Size Reduction Facility (Los Alamos)
SRP	Savannah River Plant
SS	Special source
SWB	Standard waste box
SWEPP	Stored Waste Examination Pilot Plant (INEL)
TRAMPAC	TRUPACT-II Authorized Methods for Payload Compliance
TRU	Transuranic
TRUCON	TRUPACT-II Content Code document
TRUPACT-II	Transuranic Package Transporter-II
U	Uranium
WAC	Waste Acceptance Criteria
WEAF	Waste Examination and Assay Facility (ORNL)
WIPP	Waste Isolation Pilot Plant
WMO	Waste Management Operations
WOS	Waste Operation Section

CONTENT CODE: AE 111A

CONTENT DESCRIPTION: Solidified Laboratory Waste

GENERATING SITE: Argonne National Laboratory - East

WASTE DESCRIPTION: The waste is solidified waste of a nonflammable aqueous nature, that has been immobilized by absorption into #2 grade vermiculite. Typically, the absorbed liquids are solutions of acidic liquids with a pH of less than 2, treated to increase the pH (7 to 10). Small amounts of aqueous-based detergent solution are generated during decon termination activities.

GENERATING SOURCES: The waste originates from Buildings 205 and 350 at ANL-E.

WASTE FORM: Immobilized liquids are derived from research activities, decontamination and decommissioning activities, disposal of liquid wastes from usable items (equipment), or disposal of liquid from nonusable items that would otherwise be a solid waste.

WASTE PACKAGING: Absorbed liquids on vermiculite are packaged in 55-gallon drums. HDPE liners are used inside the drums. The liner is assigned a serial number and sealed before the drum is sealed. Both liners and drums are quality inspected upon arrival. No plastic bags are used inside the HDPE liners.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The liquid waste containers are surveyed by health physics for direct beta/gamma radiation. A sample of the waste is then analyzed by the WMO Control Lab using gas flow proportional counting for calculating Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Aqueous liquids are absorbed into #2-grade vermiculite contained in a 55-gallon polyethylene drum liner. Operations Test Procedure OTP-1 (Test to Determine Availability of Liquid into #2-grade vermiculite Contained in a 55-gallon Drum Liner) documents that no free liquids are present when 19 gallons

of liquid are absorbed into 43 gallons of poured #2-grade vermiculite. ANL procedures specify a maximum of 12 gallons of liquid absorbed into 43 gallons of vermiculite.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified in this waste stream and are not foreseen in the future.

PYROPHORICS: No pyrophorics have been identified in this waste stream, and none are foreseen in the future.

CORROSIVES: Liquids having the same characteristics and compatibility are then grouped together and treated in batch operation to form a homogeneous mixture of aqueous, nonacidic liquids (pH 7-10).

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a rigid liner with no plastic bag liners. This code is assigned to shipping categories I.1A0 (drums) and I.1B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2060 for a single drum and 0.1457 an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.8840 for drums and 1.1656 for overpacked drums. (See Table 6-2).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
131	Solidified Laboratory Waste	Argonne National Laboratory - East

CONTENT CODE: AE 116A

CONTENT DESCRIPTION: TRU Combustible Waste

GENERATING SITE: Argonne National Laboratory - East

WASTE DESCRIPTION: Solid combustible waste is derived from research activities performed in a laboratory environment. The waste includes soft plastics, cardboard, rags, paper, cloth, concrete and laboratory apparatus from various processes.

GENERATING SOURCES: The waste originates from Buildings 200, 205, 212 and 350 at ANL-E.

WASTE FORM: Solid combustible and some noncombustible waste is produced by two sources: research generation and decontamination and decommissioning activities. Research-generated waste (RGW) is produced as a by-product from research activities performed in a laboratory environment on a routine basis. Decontamination and decommissioning wastes (DDW) are derived from decontamination and disposal of facilities and ancillary systems (e.g. gloveboxes).

WASTE PACKAGING: The polyethylene 90-mil HDPE liner is used for RGW and DDW placed inside a drum package. Five-gallon pails are used for the RGW in this content code. Five-gallon metal cans are used to package waste with no plastic bag layers inside the cans. The lids of the cans are "crimped" sealed. The seal is not air-tight. The five-gallon cans will be packed in a Standard Waste Box (SWB). All drums and HDPE liners are inspected by the WMO QA coordinator before they are acceptable for use.

ASSAY: A segmented gamma scan counter (SGS) with a density compensator that compensates for the material of the receptacle is used for assay. The scanner is routinely checked for accuracy by the NDA operator who uses sources of U-235 and Pu-239 of known quantities. Accountability records for isotopic distribution in known mixtures of radionuclides are used in conjunction with SGS to calculate isotopic composition. The results are used to calculate Pu-239 fissile

equivalent (plus error) and total decay heat (plus error) for each waste package. If the assay results show amounts of radionuclides significantly greater than listed by the RGW generator, the generator is contacted for correction of the accountability form and the waste disposal requisition form.

FREE LIQUIDS: A Solid Radioactive Waste Disposal Requisition is used by the waste generator to document the waste in a filled receptacle. In addition to providing the radionuclides and estimates of each in the waste, the generator must also answer eight waste form questions with either "yes" or "no." The questions include whether or not the waste contains liquids in any form, pyrophoric materials, pressurized vessels, or corrosive materials. If "yes" is answered to any of these questions, WMO is alerted that the waste must be treated or it is not certifiable.

EXPLOSIVES/COMPRESSED GASES: Explosives and compressed gases have not been identified in this waste.

PYROPHORICS: Pyrophorics have not been identified in this waste.

CORROSIVES: No corrosives have been identified in this waste stream, and none are foreseen in the future.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in five-gallon cans with no internal plastic bagging. These five-gallon cans will always be packed in the SWB. This content code is assigned to shipping category III.1C0.

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.5103 for a single Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.0206 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
110	Research-Generated Combustible Waste (RGW)	Argonne National Laboratory - East
120	Decontamination and Decommissioning Combustible Waste (DDW)	Argonne National Laboratory - East
111	Research-Generated Noncombustible Waste (RGW)	Argonne National Laboratory - East
121	Decontamination and Decommissioning Noncombustible Waste (DDW)	Argonne National Laboratory - East

CONTENT CODE: AE 116B

CONTENT DESCRIPTION: TRU Combustible Waste

GENERATING SITE: Argonne National Laboratory - East

WASTE DESCRIPTION: Solid combustible waste derived from research activities performed in a laboratory environment. The waste includes soft plastics, cardboard, rags, paper and cloth from various processes.

GENERATING SOURCES: The waste originates from Buildings 200, 205, 212 and 350 at ANL-E.

WASTE FORM: Solid combustible waste is produced by two sources: research generation and decontamination and decommissioning activities. Research-generated waste (RGW) is produced as a by-product from research activities performed in a laboratory environment on a routine basis. Decontamination and decommissioning wastes (DDW) are derived from decontamination and disposal of facilities and ancillary systems (e.g. gloveboxes).

WASTE PACKAGING: The polyethylene 90-mil HDPE liner is used for RGW and DDW placed inside a drum package. The 55-gallon drums are used for the RGW in this content code. All 55-gallon drums contain a maximum of one layer of plastic bag closed by the twist and tape method. All drums and HDPE liners are inspected by the WMO QA coordinator before they are acceptable for use.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A segmented gamma scan counter with a density compensator that compensates for the material of the receptacle is used for assay. The scanner is routinely checked for accuracy by the non-destructive assay (NDA) operator who uses sources of U-235 and Pu-239 of known quantities. Accountability records for isotopic distribution in known mixtures of radionuclides are used in conjunction with SGS to calculate isotopic composition. The results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus

error) for each waste package. If the assay results show amounts of radionuclides significantly greater than listed by the RGW generator, the generator is contacted for correction of the accountability form and the waste disposal requisition form.

FREE LIQUIDS: A Solid Radioactive Waste Disposal Requisition is used by the waste generator to document the waste in a filled receptacle. In addition to providing the radionuclides and estimates of each in the waste, the generator must also answer eight waste form questions with either "yes" or "no." The questions include whether or not the waste contains liquids in any form, pyrophoric materials, pressurized vessels, or corrosive materials. If "yes" is answered to any of these questions, WMO is alerted that the waste must be treated or it is not certifiable.

EXPLOSIVES/COMPRESSED GASES: Explosives and compressed gases have not been identified in this waste.

PYROPHORICS: Pyrophorics have not been identified in this waste.

CORROSIVES: No corrosives have been identified in this waste stream, and none are foreseen in the future.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of one layer of plastic in 55-gallon drums or drums overpacked in the SWB. This layer of plastic is a large drum liner bag. This content code has been assigned shipping categories III.1A1 (drums) and III.1B1 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0962 for a single drum and 0.0758 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.3468 for drums and 0.6064 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
110	Research-Generated Waste (RGW)	Argonne National Laboratory - East
120	Decontamination and Decommissioning Waste (DDW)	Argonne National Laboratory - East

CONTENT CODE: ID 111A

CONTENT DESCRIPTION: Solidified Aqueous Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous effluent from uranium and plutonium processing activities is treated in Buildings 374 and 774 at Rocky Flats Plant. The final waste product is obtained by mixing the wet sludge with approximately 30% volume portland cement.

GENERATING SOURCES: The waste originated from Buildings 374 and 774 at Rocky Flats Plant.

WASTE FORM: Solidified aqueous waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: The cemented sludge is placed in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag, and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge from each batch (IDC 800) or each drum (IDCs 803 and 807) is taken to determine the amount and identity of the radionuclides (plutonium, americium and uranium) in the sludge. The assay results for each

batch are equally divided among all the drums of waste produced from each batch. The sludge sample is analyzed using a radiochemical assay. The results of the analysis are expressed in terms of grams for each radionuclide present for each gram of sludge. Also, the cemented sludge may be assayed using a passive-active neutron (PAN) counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operation controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the drum was closed.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system, which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of large drum liner plastic bags in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to shipping categories I.2A2 (drums) and I.2B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum and 0.1486 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums and 1.1888 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Building 374	Rocky Flats Plant
807	Solidified Bypass Sludge Building 374	Rocky Flats Plant

CONTENT CODE: ID 111B

CONTENT DESCRIPTION: INEL Solidified Aqueous Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a wet sludge from chemical treatment of an aqueous waste or from tanks containing liquid. The wet sludge was treated with absorbents such as portland cement or Oil-Dri to absorb any free liquid. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: This waste originated from plutonium processing areas at Rocky Flats Plant.

WASTE FORM: The sludges from chemical treatment of aqueous wastes (IDCs 001, 002, 007) were produced by making the solutions basic and treating them with flocculating agents to precipitate the radioactive elements such as plutonium and americium. The slurry was filtered to produce a wet sludge. Portland cement was added to ensure absorption of any free liquids.

Sludge (IDC 976) was removed from tanks that collected liquid effluent from floor drains. The sludge consists of dirt, sand, gravel, floor sweepings and similar materials. The sludge was mixed with portland cement.

Sludge (IDC 978) was removed from laundry tanks and consists of lint, spent detergents, dirt and similar materials. The sludge was mixed with portland cement.

WASTE PACKAGING: IDCs 001, 002 and 007 were originally packaged by adding the sludge to a prepared waste drum that contained portland cement for absorption of liquid. The waste is reprocessed into a new drum or bin with the addition of additives, described above, for experimental purposes. The waste is packaged

in a maximum of two large liner bags in a drum or bin overpacked in a SWB. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste is wet when packaged. Portland cement is added to absorb any free liquid. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories I.2A2 (drums), I.2B2 (SWB overpack) and I.2D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum, 0.1486 for an overpacked drum and 0.4827 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums, 1.1888 for overpacked drums and 0.9654 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Uncemented Sludge	Rocky Flats Plant
002	Second Stage Sludge	Rocky Flats Plant
007	Wet Sludge-Building 374	Rocky Flats Plant
976	Process Sludge-Building 776	Rocky Flats Plant
978	Laundry Sludge	Rocky Flats Plant

CONTENT CODE: ID 111C

CONTENT DESCRIPTION: Solidified Aqueous Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous effluent from uranium and plutonium processing activities is treated in Buildings 374 and 774 at Rocky Flats Plant. The final waste product is obtained by mixing the wet sludge with approximately 30% portland cement. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 374 and 774 at Rocky Flats Plant.

WASTE FORM: Solidified aqueous waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample on the sludge from each drum is taken to determine the amount and identity of the radionuclides (plutonium, americium and uranium) in the

sludge. The sludge sample is analyzed using a radiochemical assay. The results of the analysis are expressed in terms of grams of each radionuclide present for each gram of sludge. Also, the cemented sludge may be assayed using a passive-active neutron (PAN) counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories I.2A2 (drums), I.2B2 (SWB overpack), and I.2D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum, 0.1486 for an overpacked drum and 0.4827 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums, 1.1888 for overpacked drums and 0.9654 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Building 374	Rocky Flats Plant
807	Solidified Bypass Sludge Building 374	Rocky Flats Plant

CONTENT CODE: ID 112A

CONTENT DESCRIPTION: Solidified Organics

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Waste organic liquids are transferred to Building 774 at Rocky Flats Plant for cementation. The liquids (oil and/or solvents) are mixed with gypsum cement (Envirostone) and packaged.

GENERATING SOURCE: The waste originated from Building 774 at Rocky Flats Plant.

WASTE FORM: The organics and gypsum cement are mixed together within a 55-gallon drum prepared as described below. The oil/solvent mixtures may contain machining soil, lathe coolant, carbon tetrachloride, 1,1,1-trichloroethane and 1,1,2-trichloro-1,2,2-trifluoroethane. The waste laboratory solvents contain chloroform or a mix of chloroform and xylene.

WASTE PACKAGING: The cemented liquid is mixed and cured in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The laboratory solvents are containerized and assayed prior to shipment to Building 774. The results of the radiochemical assays for bottled waste liquid are totaled and assigned to the appropriate drum. The oil/solvent mixture is transferred to Building 774 via pipeline from waste tanks in other buildings. The contents of each tank are assayed radiochemically to determine the amount of radionuclides in the liquid. The liquids are transferred to Building 774 in batches of less than 200 grams Pu-239 fissile equivalent. The assay results for

the batch are equally divided among all of the drums of cemented waste produced from that batch. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: TRU solidified organic waste is cast into a solid by mixing gypsum cement with the organic waste in a controlled process per procedure. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: No explosives, explosive mixtures, or compressed gases have been identified in this waste.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Since the waste is organic, there is no corresponding pH.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of large drum liner plastic bags in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to test categories IVA2T (drums) and IVB2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
700	Oasis Waste	Rocky Flats Plant
801	Solidified Organics Building 774	Rocky Flats Plant
808	Solidified Laboratory Organics Building 774	Rocky Flats Plant

CONTENT CODE: ID 113A

CONTENT DESCRIPTION: Solidified Laboratory Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous laboratory wastes that are not compatible (e.g., strong acids or bases) with the primary aqueous treatment system are neutralized and solidified. The final waste form is obtained by mixing portland and magnesia cement with the waste.

GENERATING SOURCES: The waste originated from Building 774 at Rocky Flats Plant.

WASTE FORM: The liquid waste is accumulated in bottles and, after chemical and radiochemical assay, is transferred to Building 774. The bottles are segregated into batches of 80-100 liters and less than 200 grams fissile material. The pH of the waste is adjusted to be slightly basic, and then the waste is added to the premixed (portland and magnesia) cement mixture in the drum.

WASTE PACKAGING: The cemented liquid is placed in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: As described under waste form, the laboratory waste is assayed radiochemically. The results of the assays are totaled and assigned to the appropriate drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: TRU solidified laboratory waste is cast into a solid by mixing with portland and magnesia cement with the neutralized laboratory waste in a controlled process per procedure. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the drum was closed.

EXPLOSIVE/COMPRESSED GASES: No explosives, explosive mixtures or compressed gases have been identified in this waste.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: The pH of the liquid waste is adjusted to be slightly basic prior to solidification. No corrosives are included in this content code.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of large drum liner plastic bags in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to test categories IVA2T (drums) or IVB2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
802	Solidified Laboratory Waste Building 774	Rocky Flats Plant

CONTENT CODE: ID 114A

CONTENT DESCRIPTION: Cemented Inorganic Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: All particulate and sludge-type wastes that are generated and containerized during plutonium recovery operations are solidified with portland cement. The resultant waste is designated inorganic cemented process solids. Examples of the wastes are filter sludge, grit and fire brick fines. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Building 371 and 771 at Rocky Flats Plant.

WASTE FORM: The waste is mixed with a portland cement mixture in a one-gallon mold. The cement mixture used varies by procedure with the type of waste being cemented. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of particulates or sludge is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum. For bins, the drum assays are summed in accordance with procedures outlined in Appendix

1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories I.3A2 (drums), I.3B2 (SWB overpack), and I.3D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.6375 for a single drum, 0.4828 for an overpacked drum and 1.5689 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 8.9250 for drums, 3.8624 for overpacked drums and 3.1378 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
806	Cemented Process Solids	Rocky Flats Plant

CONTENT CODE: ID 115A

CONTENT DESCRIPTION: Graphite Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Discarded graphite from plutonium casting and laboratory operations.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771 and 776 at Rocky Flats Plant.

WASTE FORM: Broken graphite molds and graphite furnace equipment or graphite chunks and pieces from mold cleaning and declassification. Discarded laboratory equipment is also included in this content code.

WASTE PACKAGING: The graphite waste is placed directly into a 55-gallon drum or double-bagged (two PVC bags or one PVC and one polyethylene bag) prior to loading. The drum is lined with a HDPE liner and 14-mil O-ring PVC bag. The PVC bag may have a polyethylene bag around it for contamination control purposes. A fiberboard liner is placed between the waste bags and the drum liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed by segmented gamma scan or passive-active neutron (PAN) counters. The results are recorded in grams of the radionuclides present in the drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Graphite waste contains no free liquid. Direct inspection of the waste by real-time radiography (RTR) of the drum contents ensures that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers may not be packaged with this content code. RTR examination of each waste package ensures that pressurized containers are excluded from the waste.

PYROPHORICS: Graphite waste contains no pyrophoric material other than discard levels of radionuclides. Other pyrophorics are prohibited by waste packaging procedures.

CORROSIVES: No corrosive materials are used in conjunction with graphite at Rocky Flats. Also, corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories II.1A4 (drums) and II.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum and 0.0392 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums and 0.3136 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant
303	Scarfed Graphite Chunks	Rocky Flats Plant
312	Graphite, Coarse	Rocky Flats Plant

CONTENT CODE: ID 115B

CONTENT DESCRIPTION: INEL TRU Graphite Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITES: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of graphite waste generated from plutonium foundry operations, recovery processes and analytical procedures. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: Rocky Flats Plant graphite waste was primarily generated by Foundry Operations (Building 707), Plutonium Recovery Operations (Building 771 and 371) and the Size Reduction Facility (Building 776). Limited amounts of graphite waste were also generated by R&D projects.

WASTE FORM: RFP generated graphite waste consists of broken graphite molds from plutonium casting operations, graphite spacers and liners used in high-temperature furnaces and ovens, and graphite pieces and chunks generated from mold cleaning ("scarfing") operations.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety

Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of residual liquids (<1% volume) is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

EXPLOSIVE/COMPRESSED GASES: No explosives or compressed gases have been identified by characterization of waste streams. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive materials have not been identified by characterization of waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by characterization of waste streams. Absence of toxic or corrosive materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code

has been assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant

CONTENT CODE: ID-115C

CONTENT DESCRIPTION: Graphite Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of discarded graphite from plutonium casting and laboratory operations. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771 and 776 at Rocky Flats Plant.

WASTE FORM: The waste consists of broken graphite molds and graphite furnace equipment or graphite chunks and pieces from mold cleaning and declassification. Discarded laboratory equipment is also included in this content code.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. A fiberboard liner is placed between the waste bags and the drum liners for puncture protection. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed by segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are recorded in grams of the radionuclides present in the drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Graphite waste contains no free liquid. Direct inspection of the waste by real-time radiography (RTR) of the drum contents ensures that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers may not be packaged with this content code. RTR examination of each waste package ensures that pressurized containers are excluded from the waste.

PYROPHORICS: Graphite waste contains no pyrophoric material other than discard levels of radionuclides. Other pyrophorics are prohibited by waste packaging procedures.

CORROSIVES: No corrosive materials are used in conjunction with graphite at Rocky Flats. Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a SWB and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for a SWB and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant
303	Scarfed Graphite Chunks	Rocky Flats Plant
312	Graphite, Coarse	Rocky Flats Plant

CONTENT CODE: ID 116A

CONTENT DESCRIPTION: Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills. It may also include other combustible items as mentioned in the waste description section.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is either loaded directly into a drum or removed from the glovebox line contained in a PVC or a PVC and polyethylene bag. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE liner and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. All bag closures are by the twist and tape method.

BOX PREPARATION:

The waste accumulated in drums may be dumped into a Standard Waste Box. Each bag of waste is opened prior to placement in the SWB. The SWB is lined with one 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) drum counter or a non-transmission corrected NaI drum counter. The results are expressed as grams of radionuclides per individual

drum. For SWBs, the drum assays are totaled to determine the amount of radionuclides in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (e.g., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in drums and a maximum of one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpack) and III.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum, and 0.3515 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.7030 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
330/831	Combustibles, Dry	Rocky Flats Plant
336/832	Combustibles, Wet	Rocky Flats Plant
337/833	Plastics	Rocky Flats Plant

CONTENT CODE: ID 116B

CONTENT DESCRIPTION: INEL TRU Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of combustible wastes such as wood, plastic, paper, rags, cardboard, rubber, etc. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: This waste originated from the Rocky Flats Plant and was generated at all of the plutonium areas.

WASTE FORM: The combustible waste may contain dry, damp or moist solids. The solid materials consist of paper; rags; plastics such as polyethylene, PVC, and Teflon; surgeons' gloves; cloth overalls and booties; cardboard; wood in the form of lumber; plywood sheeting; filter frames; ladders; empty polyethylene bottles; laundry lint; Kimwipes; canvas; sample vials; respirator facemasks; etc. Some of the combustibles may be coated with paint. Old IDC 336 waste generated prior to 1975 contains nitric acid in trace quantities.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a drum, a Standard Waste Box or a bin. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed

in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB

or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
330	Paper and Rags-Dry	Rocky Flats Plant
336	Paper and Rags-Moist	Rocky Flats Plant
337	Plastic and Nonleaded Rubber	Rocky Flats Plant
900	Plastic, Paper, etc.	Rocky Flats Plant
970	Wood	Rocky Flats Plant

CONTENT CODE: ID 116C

CONTENT DESCRIPTION: Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills. It may also include other combustible items as mentioned in the waste description section.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) drum counter or a non-transmission corrected NaI drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when it is placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C1 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.3515 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.7030 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
330/831	Combustibles, Dry	Rocky Flats Plant
336/832	Combustibles, Wet	Rocky Flats Plant
337/833	Plastics	Rocky Flats Plant

CONTENT CODE: ID 117A

CONTENT DESCRIPTION: Metal waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of non-pyrophoric waste metals (e.g., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum.)

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste form includes items such as gloveboxes, used shielding, tools, crucibles, machinery and empty containers. The items that are difficult to reduce to a size that would fit in a drum are placed in Standard Waste Boxes (SWB).

WASTE PACKAGING: The waste is placed in both 55-gallon drums and SWBs.

DRUM PREPARATION:

The waste is either loaded directly into a drum or removed from the glovebox line contained in two PVC bags or a PVC and a polyethylene bag. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE liner and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. A fiberboard liner is placed between the waste and the drum liners for puncture protection. All bag closures are by the twist and tape method.

BOX PREPARATION:

The waste accumulated in drums may be dumped into the SWB. The outer and inner bags are opened prior to placement in the SWB. The SWB is lined with a 14-mil PVC liner. For stripout operations, the metal waste is wrapped in several layers of PVC sheeting and then placed in the SWB. For waste leaving the Advanced Size Reduction Facility (ASRF), the metal is loaded directly into the SWB with an additional 14-mil PVC liner. A liner (made of metal or wood) is inserted between

the waste and the inner PVC liner to support the PVC liner during loading. A fiberboard liner is placed between the waste and the PVC liner for puncture protection. All bag liners are sealed by taping along the folds.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Standard Waste Boxes are assayed using a PAN crate counter. For SWBs that contain waste dumped from drums, the drum assays are totaled to calculate the amount of radionuclides in each waste box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (e.g., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the package is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in the 55-gallon drums and a maximum of two layers of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there are one or two large waste box liner bags. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpack) and II.1C2 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum, and 0.5361 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.0722 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant
321	Lead	Rocky Flats Plant
480	Light Metal	Rocky Flats Plant
488	Glovebox Parts with Lead	Rocky Flats Plant
854	Beryllium	Rocky Flats Plant

CONTENT CODE: ID-117B

CONTENT DESCRIPTION: INEL TRU Metal Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste contains billets of a zinc-magnesium alloy. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The metal waste from the Rocky Flats Plant was generated by the Process Chemistry and Development group.

WASTE FORM: The waste contains small billets of zinc-magnesium (10 to 30% magnesium) alloy metal used in a research and development salt cleanup project.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant
416	Zinc-Magnesium Alloy	Rocky Flats Plant
480	Light Metal	Rocky Flats Plant
481	Leached Light Non-SS Metal	Rocky Flats Plant

CONTENT CODE: ID 117C

CONTENT DESCRIPTION: Metal Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of non-pyrophoric waste metals (i.e., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum.) Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste form includes items such as gloveboxes, used shielding, tools, crucibles, machinery and empty containers. The items that are difficult to reduce to a size that would fit in a drum are placed in Standard Waste Boxes (SWB).

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Standard Waste Boxes are assayed using a PAN crate counter. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report

(SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the package is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in two layers of plastic when placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are two large waste box liner bags.

The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant
321	Lead	Rocky Flats Plant
480	Light Metal	Rocky Flats Plant
488	Glovebox Parts with Lead	Rocky Flats Plant
854	Beryllium	Rocky Flats Plant

CONTENT CODE: ID 118A

CONTENT DESCRIPTION: Glass Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of glass and ceramic waste from recovery, maintenance and laboratory operations at Rocky Flats Plant.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste form includes items such as Raschig rings (borosilicate glass - neutron poison), ceramic crucibles, glovebox windows, laboratory glassware, process equipment and empty containers.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The glass is either loaded directly into a drum or removed from the glovebox line contained in two PVCs or a PVC and a polyethylene bag. In addition, the waste may be collected in a metal can or polyethylene bottle (one gallon or less) which would then be removed from the line wrapped within the two bags. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

BOX PREPARATION:

The waste accumulated in drums may be dumped into the SWB. Each bag of waste is opened prior to placement in the SWB. The SWB has a fiberboard liner placed between the waste and the container liners for puncture protection. The SWB is

lined with a 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs, the drum assays are totaled to determine the amount of radionuclides present in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (e.g., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED CASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the glass waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in the drum and a maximum of one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpack) and II.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum, and 0.7029 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.4058 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
368	Magnesium Oxide Crucibles	Rocky Flats Plant
370	Leco Crucibles	Rocky Flats Plant
440	Glass	Rocky Flats Plant
442	Leached Raschig Rings	Rocky Flats Plant
443	Leached Raschig Rings (Solvent Residues)	Rocky Flats Plant
444	Ground/Leaded Glass	Rocky Flats Plant

CONTENT CODE: ID 118B

CONTENT DESCRIPTION: INEL TRU Glass Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of leached glass neutron absorbers (Raschig rings). Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The glass waste was generated by all of the plutonium processing areas.

WASTE FORM: This waste is in the form of glass Raschig rings. The Raschig rings are borated glass rings approximately 1.75 inches high by 1.50 inches in diameter with a wall thickness of approximately 0.25 inches.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
440	Glass	Rocky Flats Plant
442	Leached Raschig Rings	Rocky Flats Plant

CONTENT CODE: ID 118C

CONTENT DESCRIPTION: Glass Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of glass and ceramic waste from recovery, maintenance and laboratory operations. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste form includes items such as Raschig rings (borosilicate glass - neutron poison), ceramic crucibles, glovebox windows, laboratory glassware, process equipment and empty containers.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the glass waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpacks), II.1C1 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.7029 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUFAC-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.4058 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
368	Magnesium Oxide Crucibles	Rocky Flats Plant
370	Leco Crucibles	Rocky Flats Plant
440	Glass	Rocky Flats Plant
442	Leached Raschig Rings	Rocky Flats Plant
443	Leached Raschig Rings (Solvent Residue)	Rocky Flats Plant
444	Ground/Leaded Glass	Rocky Flats Plant

CONTENT CODE: ID 119A

CONTENT DESCRIPTION: Filter Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Filter waste includes absolute dry box filters, HEPA filters, filter media (separated from the filter frame) and Ful-Flo (liquid) filters.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: HEPA filters and drybox filters are of various sizes. The frames are made of wood or metal and the medium is a fiberglass-type or Nomex-type medium. Ful-Flo filter cartridges consist of polypropylene plastic. Some types of filter waste are processed by the addition of portland cement to the waste, according to Waste Operations procedures.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The filters or filter media are double bagged (two PVC bags or one each PVC and polyethylene bags) and removed from the glovebox line or filter plenum. In addition, the filter media may be collected within a polyethylene bottle (less than or equal to one gallon). The filter waste is then placed in a 55-gallon drum which is lined with a HDPE liner and a up to two 14-mil thick polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liners as puncture protection. All bag closures are by the twist and tape method.

BOX PREPARATION:

HEPA filters may also be placed within Standard Waste Boxes. The SWBs have a fiberboard liner placed between the waste and the container liners as puncture

protection. The SWB is lined with a 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The drums may be assayed on a segmented gamma scan counter, a non-transmission corrected NaI drum counter, or a passive-active neutron (PAN) drum counter. Standard Waste Boxes are assayed using a PAN crate counter. The results are expressed as grams of radionuclides per individual container. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Filters and filter media are dried, drained or otherwise segregated from liquids and, in addition, absorbents (e.g., Oil-Dri) are added to the bottom of Standard Waste Boxes to absorb any liquids that may desorb after the box is closed.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. Real-time radiography (RTR) examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: All corrosive materials are neutralized or removed from this waste as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in the drum and a maximum of three layers of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpack) and III.1C3 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum, and 0.0611 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.1222 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Insulation & CWS Filter Media	Rocky Flats Plant
342	Absolute Dry Box Filters (Acid Residues)	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant

CONTENT CODE: ID 1193

CONTENT DESCRIPTION: INEL TRU Filter Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of absolute filters used for filtering glovebox intake and exhaust air, high efficiency particulate air (HEPA) filters, Chemical Warfare Service (CWS) filters, fiberglass and asbestos filter media, asbestos pipe insulation and asbestos gloves and fireblankets. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: This waste was generated at all plutonium areas at Rocky Flats Plant. The majority of the waste drums were generated by Plutonium Recovery Operations, Chemical Operations Support, and Analytical Laboratories.

WASTE FORM: The majority of the absolute filters (IDC 335) were 8 x 8 x 6 inches. IDC 335 also includes some 8 x 8 x 4-inch and 12 x 12 x 6-inch filters. The CWS filters (IDC 490) includes 24 x 24 x 12-inch HEPA filters, 8 x 6-inch diameter CWS filters, 24 x 24 x 2-inch and 10 x 10 x 2-inch prefilters, and 8 x 8 x 6-inch and 8 x 8 x 4-inch absolute filters. Filter frames are wood, particle board or aluminum. The filter media is usually either fiberglass or asbestos. Other asbestos materials such as pipe insulation gloves and fireblankets is included as IDC 338.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Filters (8" x 8")	Rocky Flats Plant
338	Insulation and CWS Filter Media	Rocky Flats Plant
490	CWS Filters	Rocky Flats Plant

CONTENT CODE: ID 119C

CONTENT DESCRIPTION: Filter Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Filter waste includes absolute dry box filters, HEPA filters, filter media (separated from the filter frame) and Ful-Flo (for liquids) filters. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: HEPA filters and drybox filters are of various sizes. The frames are made of wood or metal, and the media are composed of a fiberglass-type or Nomex-type material. Ful-Flo filter cartridges consist of polypropylene plastic. Some types of filter waste are processed by the addition of portland cement to the waste, according to Waste Operations procedures.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter, a non-transmission corrected NaI drum counter or a passive-active neutron (PAN) drum counter. Standard Waste Boxes or bins overpacked in a SWB are assayed using a PAN crate counter. The results are expressed as grams of radionuclides per

individual container. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Filters and filter media are dried, drained or otherwise segregated from liquids and, in addition, absorbents (i.e., Oil-Dri) are added to the bottom of Standard Waste Boxes to absorb any liquids that may desorb after the box is closed.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. Real-time radiography (RTR) examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: All corrosive materials are neutralized or removed from this waste as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are two large waste box liner bags. The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.3360 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant
342	Absolute Dry Box Filters (acid residues)	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant

CONTENT CODE: ID 121A

CONTENT DESCRIPTION: Organic Solid Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Organic solid waste that is non-combustible. Benelex and Plexiglas neutron shielding, blacktop, concrete, dirt and sand are included in this content code.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: Benelex and Plexiglas neutron shielding in slabs that are two or four inches thick. This content code also encompasses blacktop, concrete, dirt and sand.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is removed from the glovebox contained in up to two layers of plastic (two PVC bags or one each PVC and polyethylene). The bagged waste is then placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

BOX PREPARATION:

The slabs may be wrapped with several layers of PVC sheeting and then placed in a Standard Waste Box. The SWB is lined with a maximum of one 14-mil PVC liners. A fiberboard liner is placed between the waste and the box liners for puncture protection. All bag liners are sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. The box is assayed by a passive-active neutron (PAN) crate counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed package is performed as a second verification that no free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in the drum (IDC 374) and a maximum of one layer of plastic in the SWB (IDC 302). In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpack) and III.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum, and 0.3515 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.7030 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant

CONTENT CODE: ID 121B

CONTENT DESCRIPTION: INEL TRU Solid Organic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of Benelex, which was used for neutron shielding, and Plexiglas glovebox windows. The Benelex was usually coated with fire-retardant paint and sometimes had lead sheeting attached to it. In addition to Plexiglas, some leaded glass may be present. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The majority of the waste drums were generated from maintenance and renovation projects by Plutonium Recovery Operations.

WASTE FORM: Benelex is a dense, laminated, lignocellulose hardboard made from wood chips and particles. The Benelex in this waste is usually two inches thick. The Benelex was used as neutron shielding and weighs approximately 90 lb/ft³.

Plexiglas is a trade name for a transparent plastic material made from methyl methacrylate. Plexiglas glovebox windows are usually two to four inches thick and are various sizes.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
464	Benelex and Plexiglas	Rocky Flats Plant

CONTENT CODE: ID-121C

CONTENT DESCRIPTION: Organic Solid Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of organic solid waste that is non-combustible. Benelex and Plexiglas neutron shielding, blacktop, concrete, dirt and sand are included in this content code. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste consists of Benelex and Plexiglas neutron shielding in slabs that are 2- or 4-inches thick. This content code also encompasses blacktop, concrete, dirt and sand.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. The SWB or bins overpacked in a SWB are assayed by a passive-active neutron (PAN) crate counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed package is performed as a second verification that no free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C1 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.3515 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum

wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.7030 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant

CONTENT CODE: ID 122A

CONTENT DESCRIPTION: Solid Inorganic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of firebrick, clay absorbent and insulation.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The majority of the waste in this content code is waste generated during maintenance/stripout activities (i.e., replacement of firebrick refractory or insulation). The content code also encompasses insulation, fire blankets, and Oil-Dri (clay absorbent).

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is removed from the glovebox contained in up to two layers of plastic (two PVC bags or one each PVC and polyethylene). The bagged waste is then placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

BOX PREPARATION:

The Standard Waste Box is lined with a 14-mil PVC liner. Waste is directly loaded into the SWB and contains no inner bags. The SWBs have a fiberboard liner placed between the waste and the container liners for puncture protection. All standard SWB bag liners are sealed by taping along the folds.

ASSAY: The waste drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. For SWBs, the drum assays are totaled to determine the amount of radionuclides in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in the drum and a maximum of one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpack) and II.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum, and 0.7029 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.4058 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
371	Firebrick	Rocky Flats Plant
375	Oil-Dri	Rocky Flats Plant
377	Firebrick, Coarse	Rocky Flats Plant
379	Firebrick, Scarfed	Rocky Flats Plant
438	Insulation (Including Fire Blankets)	Rocky Flats Plant

CONTENT CODE: ID 1223

CONTENT DESCRIPTION: INEL Solid Inorganic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITES: Rocky Flats Plant

WASTE DESCRIPTION: The Leco crucible waste consists of silicate-based ceramic crucibles and caps that were used for analyzing plutonium samples. The crucibles are one-inch high by one-inch diameter. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The Leco crucible waste was generated by the Plutonium Analytical Laboratories at the Rocky Flats Plant.

WASTE FORM: The Leco crucible waste contains one-inch high by one-inch diameter silicate-based ceramic crucibles that were used for analyzing plutonium. Some Leco crucibles contain an accelerator (iron, tin, copper, titanium, stainless steel, etc.) used to calibrate the analyzer. The plutonium and accelerating metal are fused into the Leco crucible.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a drum, a Standard Waste Box or a bin. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety

Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted. If the waste contains high density material, such as lead, that is opaque to the RTR system, that waste package will not be certified because residual liquids may escape detection.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs.

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
370	Leco Crucibles	Rocky Flats Plant
371	Firebrick	Rocky Flats Plant

CONTENT CODE: ID-122C

CONTENT DESCRIPTION: Solid Inorganic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This content code consists of firebrick, clay absorbent and insulation. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The majority of the waste in this content code is waste generated during maintenance/stripout activities (i.e., replacement of firebrick refractory or insulation). The content code also encompasses insulation, fire blankets and Oil-Dri (clay absorbent).

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C1 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.7029 for a Standard

Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.4058 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
371	Firebrick	Rocky Flats Plant
375	Oil-Dri	Rocky Flats Plant
377	Firebrick, Coarse	Rocky Flats Plant
379	Firebrick, Scarfed	Rocky Flats Plant
438	Insulation (Including Fire Blankets)	Rocky Flats Plant

CONTENT CODE: ID 123A

CONTENT DESCRIPTION: Leaded Rubber

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of leaded gloves and aprons.

GENERATING SOURCES: The waste originated from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: Discarded leaded gloves and aprons are comprised of layers of Hypalon rubber and lead oxide impregnated neoprene. Leaded rubber that has been exposed to nitric acid is washed to remove any lead nitrate that may have formed.

WASTE PACKAGING: The waste is removed from the glovebox line wrapped in two bags (two PVC bags or one PVC and one polyethylene bag) and placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Leaded rubber is dried, drained or otherwise segregated from free liquids as required by waste packaging procedures. In addition, sufficient absorbent is added directly to the waste to immobilize any liquid that may be present. Real-time radiography (RTR) examination of the sealed drum is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedures. RTR examination of the drums provides verification that no pressurized containers are present in the waste.

PYROPHORIC: The washing of the leaded rubber that was exposed to nitric acid removes any lead nitrate that may have formed. No other pyrophorics have been identified. Pyrophorics are prohibited by waste packaging procedure.

CORROSIVE: All corrosive materials are neutralized or removed from the waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
339	Leaded Gloves and Aprons	Rocky Flats Plant

CONTENT CODE: ID 123BCONTENT DESCRIPTION: INEL TRU Leaded Rubber WasteSTORAGE SITE: Idaho National Engineering LaboratoryGENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Leaded rubber waste consisting of glovebox gloves and aprons generated by all plutonium areas. Limited amounts of unleaded gloves, lead bricks, and lead sheeting may be included. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCE(S): Leaded materials are generated by all plutonium areas. From 1971 to 1973, the waste was packaged by each generating area. Since 1974, the Size Reduction Facility (Building 776) has processed all leaded items.

WASTE FORM: Analysis of common leaded glovebox gloves and aprons is as follows:

<u>Item</u>	<u>Thickness (mil)</u>	<u>Equivalency (mm)</u>	<u>Lead % (wt)</u>	<u>Weight per Item (lb)</u>
Glovebox Glove	30	0.1	Unknown	1.8
Glovebox Glove	50	0.1	42% Pb_3O_4	2.7
Glovebox Glove	60	0.2	55% Pb_3O_4	3.0
Glovebox Glove	90	0.35	56% Pb_3O_4	5.5
Apron	--	0.25	78% Pb_2O	5.25

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags

in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron assay (PAN). The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of residual liquids (<1% volume) is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified TRU waste.

EXPLOSIVE/COMPRESSED GASES: No explosives or compressed gases have been identified by characterization of waste streams. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by characterization of waste streams. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>Description</u>	<u>Generator</u>
339	Leaded Rubber Gloves and Aprons	Rocky Flats Plant
463	Gloves, Drybox	Rocky Flats Plant

CONTENT CODE: ID 123C

CONTENT DESCRIPTION: Leaded Rubber

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of leaded gloves and aprons. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The waste consists of discarded leaded gloves and aprons comprised of layers of Hypalon rubber and lead-oxide-impregnated neoprene. Leaded rubber that has been exposed to nitric acid is washed to remove any lead nitrate that may have formed.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Leaded rubber is dried, drained or otherwise segregated from free liquids as required by waste packaging procedures. In addition, sufficient

absorbent is added directly to the waste to immobilize any liquid that may be present. Real-time radiography (RTR) examination of the sealed drum is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedures. RTR examination of the drums provides verification that no pressurized containers are present in the waste.

PYROPHORIC: The washing of the leaded rubber that was exposed to nitric acid removes any lead nitrate that may have formed. No other pyrophorics have been identified. Pyrophorics are prohibited by waste packaging procedure.

CORROSIVE: All corrosive materials are neutralized or removed from the waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the liner has a minimum 0.3-inch diameter hole in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard

Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
339	Leaded Gloves and Aprons	Rocky Flats Plant

CONTENT CODE: ID 124A

CONTENT DESCRIPTION: Pyrochemical Salt Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of spent chloride salt from molten salt extraction, electrowinning or direct oxide reduction.

GENERATING SOURCES: The waste originated from Buildings 371, 776 and 779 at Rocky Flats Plant.

WASTE FORM: The salt is composed of various combinations of cesium, calcium, magnesium, potassium and sodium chloride salts from pyrochemical operations.

WASTE PACKAGING: The salt is placed in a produce can, then bagged and placed in a larger can. The larger can is then double-bagged (two PVC bags or one PVC and one polyethylene bag) and removed from the glovebox line. The waste is placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. A fiberboard liner is placed between the waste and the drum liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The individual cans of salt are assayed in-line using a segmented gamma scan counter. The can assays are totaled to determine the amount of radionuclides present in a drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The salts are packaged in a dry environment. Real-time radiography (RTR) examination verifies that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedure. The absence of pressurized containers is verified by periodic waste certification inspection of the waste packaging.

PYROPHORIC: No pyrophorics have been identified in this waste. Direct oxide-reduction salt will be air sparged to oxidize any free calcium metal prior to packaging. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosives have been identified in this waste. Corrosives are neutralized or removed from transuranic waste prior to packaging as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
411	Electrorefining Salt	Rocky Flats Plant
429	Molten Salt	Rocky Flats Plant
433	Scrub Alloy Spent Dicesium Salt	Rocky Flats Plant
454	Direct Oxide Reduction Salt	Rocky Flats Plant

CONTENT CODE: ID 125A

CONTENT DESCRIPTION: INEL TRU Combustible and Noncombustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of different waste forms such as dissolved laboratory samples absorbed in Oil-Dri, uranium pellets, plutonium sources, glassware, gloves, Kimwipes and used equipment. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The Rocky Flats Plant waste originated from the americium processing glovebox by Plutonium Recovery Operations.

WASTE FORM: The RFP waste consists of piping, flanges, valves, tools, glassware, filters, polyethylene bottles, glovebox gloves, paper and plastics.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned shipping categories III.1A2 (drums), III.1B2 (overpacked in SWB), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC.

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
241	Americium Process Residues	Rocky Flats Plant
441	Unleached Raschig Rings (Oil Residue)	Rocky Flats Plant

CONTENT CODE: ID 126A

CONTENT DESCRIPTION: Cemented Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: All particulate and sludge-type wastes generated and containerized during plutonium recovery operations are solidified with portland cement. The resultant waste is designated cemented or solidified process solids. Examples of the waste are grit, fire brick fines, filter sludge, and resins.

GENERATING SOURCES: The waste originated from Buildings 371 and 771 at Rocky Flats Plant.

WASTE FORM: The waste is mixed with a portland cement mixture in a one-gallon mold. The cement mixture used varies by procedure with the type of waste being cemented. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: The solidified pucks are double bagged with plastic (two layers of PVC or one each of PVC and polyethylene) and are then placed in a 55-gallon drum which is lined with a HDPE liner and 14-mil polyethylene bag. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of particulates or sludges is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum. The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Also, pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are also prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of three layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A3 (drums) and III.1B3 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0280 for a single drum and 0.0260 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.3920 for drums and 0.2080 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
806	Solidified Process Solids	Rocky Flats Plant
809	Cemented Resin	Rocky Flats Plant
817	Cemented SS&C Heels	Rocky Flats Plant
818	Cemented Ash	Rocky Flats Plant
820	Cemented Soot	Rocky Flats Plant
822	Cemented Resin	Rocky Flats Plant
823	Cemented Miscellaneous Sludge	Rocky Flats Plant

CONTENT CODE: ID 126B

CONTENT DESCRIPTION: INEL Solidified Organic Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium and americium. The washed resin was mixed with portland cement and water to form a solid mass. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCE: The majority of the resins were generated by Plutonium Recovery Operations at Rocky Flats Plant. Some of the resins were generated by research and development groups and analytical laboratories.

WASTE FORM: The cemented resins are a polystyrene and divinylbenzene copolymer. The anion resins are DOWEX 1x4, DOWEX 11, and Rohm and Haas Amberlite IRA-938. The cation resin is DOWEX 50x8. All resins are in the 20 to 100-mesh range. The resins were leached with hot 0.35 N nitric acid to remove radioactive material, washed with water twice to remove nitric acid, vacuum-dried, cemented, and packaged.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. The assays of the individual containers are totaled to determine the amount of

radionuclides in each drum or bin. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste may have been damp when packaged. Portland cement was added to absorb any free liquid. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum lid contains a carbon composite filter and the rigid liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic in a 55-gallon drum, in drums overpacked in a SWB, in a SWB

or in an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin or SWB, there are only large waste box liner bags. The layers of plastic in a bin are equivalent to SWB liners. This content code has been assigned to shipping categories III.1A2 (drum), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
432	Resin, Leached and Cemented	Rocky Flats Plant

CONTENT CODE: ID 126C

CONTENT DESCRIPTION: Solidified Organic Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium. The washed resin is mixed with portland cement and water to form a solid mass. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Building 371 and 771 at Rocky Flats Plant.

WASTE FORM: The resin is mixed with portland cement in a 1-gallon mold. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of resin is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of the radionuclides in each drum. For bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are also prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB) and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum

wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.5360 for Standard Waste Boxes and 0.4270 for overpacked bins. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
809	Cemented Resin	Rocky Flats Plant

CONTENT CODE: ID 127A

CONTENT DESCRIPTION: Combined Solid Organics and Solidified Inorganics

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. In addition, there are small quantities of metals (e.g., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum) and glass and ceramic waste from recovery, maintenance and laboratory operations. The aqueous effluent from uranium and plutonium processing activities is treated and mixed with approximately 30% portland cement. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The combustible waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills.

The solidified inorganic waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: The waste is reprocessed into a bin with the addition of additives, described above, for experimental purposes. The waste is packaged in a maximum of two large liner bags in a bin that is overpacked in a SWB. All bag closures are by the twist and tape or fold and tape method.

ASSAY: Each waste drum is assayed by Passive-Active Neutron (PAN) Assay. The assays of the individual containers are totaled to determine the amount of radionuclides in each bin in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile gram equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The waste is usually dry when packaged. If any residual liquids are detected during repackaging, an absorbent such as Oil-Dri, portland cement, vermiculite or clay is added. Absence of free liquids can be verified by real-time radiography (RTR).

EXPLOSIVE/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR, the INEL Sampling Program for SWEPP-certified waste and during reprocessing of the waste.

PYROPHORIC: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of the waste.

CORROSIVE: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste and during reprocessing of the waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The bin lid contains at least two carbon composite filters and the SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged with a maximum of two layers of plastic in a bin which is then overpacked in a Standard Waste Box.

The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping category III.1D2.

MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2135 for a single bin overpacked in a SWB. The maximum wattage per TRUPACT-II is 0.4270 for bins overpacked in SWBs.

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Uncemented Sludge	Rocky Flats Plant
002	Second Stage Sludge	Rocky Flats Plant
007	Wet Sludge - Building 374	Rocky Flats Plant
241	Americium Process Residues	Rocky Flats Plant
302	Benelex and Plexiglass	Rocky Flats Plant
330	Paper and Rags - Dry	Rocky Flats Plant
335	Absolute Dry Box Filters	Rocky Flats Plant
336	Paper and Rags - Moist	Rocky Flats Plant
337	Plastic and Nonleaded Rubber	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant
339	Leaded Gloves and Aprons	Rocky Flats Plant
441	Unleached Rashig Rings (Oil Residue)	Rocky Flats Plant
463	Gloves, Drybox	Rocky Flats Plant
464	Benelex and Plexiglass	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
860	WIPP Experimental Waste	Rocky Flats Plant
900	Plastic, Paper, etc.	Rocky Flats Plant
970	Wood	Rocky Flats Plant
976	Process Sludge - Building 776	Rocky Flats Plant
978	Laundry Sludge	Rocky Flats Plant

CONTENT CODE: ID 127B

CONTENT DESCRIPTION: Combined Solid Organics and Solidified Inorganics

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. In addition, there are small quantities of metals (e.g., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum) and glass and ceramic waste from recovery, maintenance and laboratory operations. The aqueous effluent from uranium and plutonium processing activities is treated and mixed with approximately 30% portland cement. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at Rocky Flats Plant.

WASTE FORM: The combustible waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills.

The solidified inorganic waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: All plastic bags will be punctured prior to placement in a bin which has been specially outfitted with test apparatus. The bin will contain a maximum of two layers of liner bags similar in size to the liner bags used in a Standard Waste Box (SWB). The bin will then be placed in a SWB. All bag closures are by the twist and tape or fold and tape method.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) counter or a non-transmission corrected NaI drum counter. The sludge waste is analyzed using a radiochemical assay. Each major type of waste (i.e., solid organics and solidified aqueous inorganics) will be assayed in drums separately prior to being mixed. The results of the analysis are expressed in terms of grams of radionuclides per individual drum or grams of radionuclides present for each gram of sludge. Assay results are used to calculate Pu-239 fissile gram equivalent (plus error) and decay heat (plus error). The assay and PU-239 fissile gram equivalent results (including errors) for each drum placed in a bin will be summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (e.g., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the waste package is closed.

The TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast.

A real-time radiography (RTR) examination is performed to ensure that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging. No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The bin lid contains at least two carbon composite filters and the SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged with a maximum of two layers of plastic in a bin which is then overpacked in a Standard Waste Box. The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping category III.1D2.

MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2135 for a single bin overpacked in a SWB. The maximum wattage per TRUPACT-II is 0.4270 for bins overpacked in SWBs.

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglass	Rocky Flats Plant
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
339	Leaded Gloves and Aprons	Rocky Flats Plant
342	Absolute Dry Box Filters (acid residues)	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Bldg 374	Rocky Flats Plant
807	Solidified Bypass Sludge Bldg 374	Rocky Flats Plant
831	Combustibles, Dry	Rocky Flats Plant
832	Combustibles, Wet	Rocky Flats Plant
833	Plastics	Rocky Flats Plant
860	WIPP Experimental Waste	Rocky Flats Plant

CONTENT CODE: ID 211A

CONTENT DESCRIPTION: INEL Stored Solidified Aqueous Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a wet sludge from chemical treatment of an aqueous waste or from tanks containing liquid. The wet sludge was treated with absorbents such as portland cement or Oil-Dri to absorb any free liquid.

GENERATING SOURCES: This waste originated from plutonium processing areas at Rocky Flats Plant.

WASTE FORM: The sludges from chemical treatment of aqueous wastes (IDCs 001, 002, 007) were produced by making the solutions basic and treating them with flocculating agents to precipitate the radioactive elements such as plutonium and americium. The slurry was filtered to produce a wet sludge. Portland cement was added to ensure absorption of any free liquids.

Sludge (IDC 976) was removed from tanks that collected liquid effluent from floor drains. The sludge consists of dirt, sand, gravel, floor sweepings and similar materials. The sludge was mixed with portland cement.

Sludge (IDC 978) was removed from laundry tanks and consists of lint, spent detergents, dirt and similar materials. The sludge was mixed with portland cement.

WASTE PACKAGING: IDCs 001, 002 and 007 have all been packaged by adding the sludge to a prepared waste drum that contained portland cement for absorption of liquid. In 1972, use of 90-mil polyethylene drum liners began. The drum liner was lined with two drum bags. Each drum bag and the liner contained a layer of portland cement at the bottom. The inner drum bag was filled with sludge and taped shut. Another layer of cement was placed over the top of the sealed bag, and the second drum bag was taped shut over the top of that

configuration. A layer of Oil-Dri was placed over the outer sealed bag, and the lid was placed on the 90-mil liner. Prior to use of the 90-mil liner, the same configuration was used without the liner. A layer of portland cement was added to the bottom of the 55-gallon drum and Oil-Dri was usually not used over the top of the outer drum bag. All bag closures are by the twist and tape method.

Sludge (IDCs 976 and 978) was shoveled out of each tank and placed in a 55-gallon drum with a 90-mil liner and one or two drum bags. Portland cement was added to each drum and mixed into the sludge with a paddle. The bags were sealed, the lid was placed on the liner and the drum was sealed. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste is wet when packaged. Portland cement is added to absorb any free liquid. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 3 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of large drum liner plastic bags in 55-gallon drums or drums overpacked in a SWB. In a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories I.2A2 (drums) and I.2B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum and 0.1486 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums and 1.1888 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Uncemented Sludge	Rocky Flats Plant
002	Second Stage Sludge	Rocky Flats Plant
007	Wet Sludge-Building 374	Rocky Flats Plant
976	Process Sludge-Building 776	Rocky Flats Plant
978	Laundry Sludge	Rocky Flats Plant

CONTENT CODE: ID 212A

CONTENT DESCRIPTION: INEL Stored Solidified Organic Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The organic setups consist of liquid organic wastes such as trichloroethane, oils, carbon tetrachloride, trichloroethylene, tetrachloroethylene, etc., that have been mixed with calcium silicate to form a grease or paste-like material. Small amounts of Oil-Dri are usually mixed with the waste.

GENERATING SOURCES: The organic wastes are generated by various plutonium and nonplutonium areas at Rocky Flats Plant and are processed at the Aqueous Waste Treatment facility.

WASTE FORM: The organic waste consists of degreasing agents such as trichloroethane, lache coolant (machining oil and carbon tetrachloride), and other organics such as trichloroethylene, tetrachloroethylene, and trace concentrations of organic laboratory waste such as organophosphates, nitrobenzene, etc. Some of the degreasing solvents are contaminated with beryllium.

WASTE PACKAGING: The liquid organic waste was processed for disposal by blending 30 gallons of organic with 100 pounds of calcium silicate in a continuous mixer to form a solid-like paste or grease. Small amounts (10 to 20 pounds) of Oil-Dri were usually mixed with the waste. The solidified grease was added to a 55-gallon drum that contains two plastic drum bags. Each drum bag has a 4-pound layer of Oil-Dri at the bottom. The 55-gallon drum also has a 4-pound layer of Oil-Dri at the bottom. More Oil-Dri or vermiculite was sometimes added to the outer bag. Since approximately 1972, the drums were lined with a 90-mil rigid polyethylene liner that was lined with the two plastic drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste may have been damp when packaged. Portland cement was added to absorb any free liquid. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of large drum liner plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a SWB, there is a large waste box liner bag. This content code is assigned to test categories IVA2T (drums) or IVB2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
003	Organic Setups	Rocky Flats Plant

CONTENT CODE: ID 213A

CONTENT DESCRIPTION: INEL Stored Solidified Lab Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITES: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of solidified liquid waste containing complexing chemicals, such as chelating agents, that are absorbed in a cement mixture. All liquid is made basic before adding it to the cement mixture.

GENERATING SOURCES: The solidified laboratory waste was generated by various operations in plutonium recovery and was processed by Aqueous Waste Treatment.

WASTE FORM: The waste consists of solidified liquids that contain plutonium complexing chemicals such as alcohols, organic acids, and chelating agents such as EDTA (ethylenediaminetetraacetic acid).

WASTE PACKAGING: The wastes were packaged by pouring approximately 100 liters of the basic liquid waste onto a cement mixture of 190 pounds of portland cement and 50 pounds of pipe insulation (magnesia) cement that had been placed into a prepared 55-gallon drum. The prepared drum contains two plastic drum bags. Since about 1972, the drums had been lined with a 90-mil rigid polyethylene liner that contained the two plastic drum bags. An additional ten to fifteen pounds of portland cement was added to the top of the liquid cement mixture before the inner drum bag was sealed. Portland cement is also added to the outer drum bag before it is sealed. Additional portland cement and Oil-Dri or vermiculite were added to the drum or liner if necessary. The sealed drum is then placed on rollers and rolled to ensure mixing of the liquid and the cement. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

for each gram of sludge. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste characterization. The basic liquid wastes (pH < 12.5) are reacted with cement and immobilized. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,

each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of large drum liner plastic bags before placement in a drum or drums overpacked in a SWB. In a SWB, there is a large waste box liner bag. This content code has been assigned to test categories IVA2T (drums) or IVB2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
004	Special Setups	Rocky Flats Plant

CONTENT CODE: ID 215A

CONTENT DESCRIPTION: INEL Stored TRU Graphite Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITES: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of graphite waste generated from plutonium foundry operations, recovery processes and analytical procedures.

GENERATING SOURCES: Rocky Flats Plant graphite waste was primarily generated by Foundry Operations (Building 707), Plutonium Recovery Operations (Building 771 and 371) and the Size Reduction Facility (Building 776). Limited amounts of graphite waste were also generated by R&D projects.

WASTE FORM: RFP generated graphite waste consists of broken graphite molds from plutonium casting operations, graphite spacers and liners used in high-temperature furnaces and ovens, and graphite pieces and chunks generated from mold cleaning ("scarfing") operations.

WASTE PACKAGING: Rocky Flats Plant molds were broken into pieces and placed directly into prepared waste drums. Graphite pieces and chunks were placed in a 13-inch high by 15.5-inch diameter cardboard Fibre-Pak and bagged out of the glovebox in up to two plastic bags. Two Fibre-paks will fit into each prepared waste drum. All bag closures are by the twist and tape method.

1970-1972: Each 55-gallon drum was lined with up to two plastic bags. Depending on generating location, the inner bag may be lined with a cardboard liner. After filling with waste, each bag was sealed with tape.

1972-Present: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with up to two plastic drum bags. Depending on generating location, a cardboard liner may be placed inside the inner drum bag. After filling with waste, each bag was sealed with tape. The rigid liner lid and drum lid were then installed.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of residual liquids (<1% volume) is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified TRU waste.

EXPLOSIVE/COMPRESSED GASES: No explosives or compressed gases have been identified by characterization of waste streams. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified TRU waste.

PYROPHORICS: Nonradioactive materials have not been identified by characterization of waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste.

CORROSIVES: No corrosive materials have been identified by characterization of waste streams. Absence of toxic or corrosive materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is vented (drum and rigid liner, if present) at the Drum Venting Facility, and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with the WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Additional verification of compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories II.1A4 (drums) and II.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum and 0.0392 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums and 0.3136 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant

CONTENT CODE: ID 216A

CONTENT DESCRIPTION: INEL Stored TRU Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of combustible wastes such as wood, plastic, paper, rags, cardboard, rubber, etc.

GENERATING SOURCES: This waste originated from the Rocky Flats Plant and was generated at all of the plutonium areas.

WASTE FORM: The combustible waste may contain dry, damp or moist solids. The solid materials consist of paper; rags; plastics such as polyethylene, PVC, and Teflon; surgeons' gloves; cloth overalls and booties; cardboard; wood in the form of lumber; plywood sheeting; filter frames; ladders; empty polyethylene bottles; laundry lint; Kimwipes; canvas; sample vials; respirator facemasks; etc. Some of the combustibles may be coated with paint. Old IDC 336 waste generated prior to 1975 contains nitric acid in trace quantities.

WASTE PACKAGING: The IDCs 336 and 970 wastes were double-contained in plastic when removed from the glovebox. Some wastes (IDC 336) were placed in polyethylene bottles (less than or equal to one gallon) and then double bagged out of the glovebox. The waste drums packaged since 1972 contain a 90-mil liner that is lined with one or two drum bags. Waste drums packaged prior to the use of the 90-mil liners were lined with one or two drum bags. Absorbent material (Oil-Dri, portland cement, vermiculite, etc.) was added to the waste if any residual liquids were suspected. Some other packaging configurations may have been used depending on where the waste was generated, but none were more restrictive to hydrogen aspiration than the packaging methods listed here. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
336	Paper and Rags-Moist	Rocky Flats Plant
970	Wood	Rocky Flats Plant

CONTENT CODE: ID 216B

CONTENT DESCRIPTION: INEL Stored TRU Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of combustible wastes such as wood, plastic, paper, rags, cardboard, rubber, etc.

GENERATING SOURCES: This waste originated from the Rocky Flats Plant. The combustible waste from RFP was generated from all of the plutonium areas.

WASTE FORM: The combustible waste may contain dry, damp or moist solids. The solid materials consist of paper; rags; plastics such as polyethylene, PVC, and Teflon; surgeons' gloves; cloth overalls and booties; cardboard; wood in the form of lumber; plywood sheeting; filter frames; ladders; empty polyethylene bottles; laundry lint; Kimwipes; canvas; sample vials; respirator facemasks; etc. Some of the combustibles may be coated with paint.

WASTE PACKAGING: This waste was placed directly into a 55-gallon drum with 90-mil liner and one or two drum bags or, prior to 1972, a 55-gallon drum without the 90-mil liner but lined with one or two drum bags. Absorbent material was added if any residual liquids were suspected in the waste. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent, such as Oil-Dri, portland cement, vermiculite or clay was

added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with
| WIPP Waste Acceptance Criteria. Container integrity is determined by visual
| examination and ultrasonic measurements. Compliance with all criteria is
| verified by SWEPP quality control inspection and statistical sampling of waste
| certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of two layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A2 (drums) and III.1B2 (SWB overpack):

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
900	Plastic, Paper, Etc.	Rocky Flats Plant

CONTENT CODE: ID 216C

CONTENT DESCRIPTION: INEL Stored TRU Combustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of combustible wastes such as wood, plastic, paper, rags, cardboard, rubber, etc.

GENERATING SOURCES: This waste originated from the Rocky Flats Plant and was generated at all of the plutonium areas.

WASTE FORM: The combustible waste may contain dry, damp or moist solids. The solid materials consist of paper; rags; plastics such as polyethylene, PVC, and Teflon; surgeons' gloves; cloth overalls and booties; cardboard; wood in the form of lumber; plywood sheeting; filter frames; ladders; empty polyethylene bottles; laundry lint; Kimwipes; canvas; sample vials; respirator facemasks; etc. Some of the combustibles may be coated with paint.

WASTE PACKAGING: The IDCs 330 and 337 wastes were triple-contained in plastic when removed from the glovebox. Some wastes (IDC 330) were placed in polyethylene bottles (less than or equal to one gallon) and then double bagged out of the glovebox. The waste drums packaged since 1972 contain a 90-mil liner that is lined with one or two drum bags. Waste drums packaged prior to the use of the 90-mil liners were lined with one or two drum bags. Absorbent material (Oil-Dri, portland cement, vermiculite, etc.) was added to the waste if any residual liquids were suspected. Some other packaging configurations may have been used depending on where the waste was generated, but none were more restrictive to hydrogen aspiration than the packaging methods listed here. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB

is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of five layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A5 (drums) and III.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0164 for a single drum and 0.0157 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2296 for drums and 0.1256 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
330	Paper and Rags-Dry	Rocky Flats Plant
337	Plastic and Nonleaded Rubber	Rocky Flats Plant

CONTENT CODE: ID 217A

CONTENT DESCRIPTION: INEL Stored TRU Metal Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste contains billets of a zinc-magnesium alloy.

GENERATING SOURCES: The metal waste from the Rocky Flats Plant was generated by the Process Chemistry and Development group.

WASTE FORM: The waste contains small billets of zinc-magnesium (10 to 30% magnesium) alloy metal used in a research and development salt cleanup project.

WASTE PACKAGING: Billets of the zinc-magnesium alloy were individually packaged in a produce can, and the can lid was sealed on the can with a roll seam. Each can was contained in double plastic bags and then placed into a Vollrath can. The can was then placed into a 55-gallon drum that contained a 90-mil rigid polyethylene liner that was lined with one or two plastic drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with
| WIPP Waste Acceptance Criteria. Container integrity is determined by visual
| examination and ultrasonic measurements. Compliance with all criteria is
| verified by SWEPP quality control inspection and statistical sampling of waste
| certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB.

This content code has been assigned shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
416	Zinc-Magnesium Alloy	Rocky Flats Plant

CONTENT CODE: ID-217B

CONTENT DESCRIPTION: INEL Stored TRU Metal Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of noncompressible and noncombustible items such as filters, metal equipment, furnace brick, metal crucibles and funnels, etc.

GENERATING SOURCES: The metal waste from the Rocky Flats Plant was generated from all of the plutonium areas.

WASTE FORM: The metal waste contains used tantalum crucibles, funnels, funnel inserts, and pour-rods. Other metals such as tungsten, platinum, and lead were also included.

WASTE PACKAGING: Prior to removal of the waste from the glovebox, all sharp edges were taped. The items were then double bagged from the glovebox and placed in a Fibre-Pak. The Fibre-Pak was then placed into a 55-gallon drum that was lined with one or two plastic drum bags. Since approximately 1972, the drums were lined with a 90-mil rigid polyethylene liner that was lined with the two plastic drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and

the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with
| WIPP Waste Acceptance Criteria. Container integrity is determined by visual
| examination and ultrasonic measurements. Compliance with all criteria is
| verified by SWEPP quality control inspection and statistical sampling of waste
| certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories II.LA4 (drums) and II.LB4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum and 0.0392 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums and 0.3136 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant

CONTENT CODE: ID.217C

CONTENT DESCRIPTION: INEL Stored TRU Metal Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of noncompressible and noncombustible items such as metal equipment, hand tools, filters, metal equipment, furnace brick, metal crucibles and funnels, etc.

GENERATING SOURCES: The metal waste from the Rocky Flats Plant was generated from all of the plutonium areas.

WASTE FORM: The waste (IDC 481) includes non-Special Source (non-SS) metals such as iron, copper, aluminum, and primarily stainless steel. The waste is in the form of small hand tools, valves, trays, clamps, pipes, etc. This metal waste has been processed by hot water washing for plutonium recovery.

The IDC 480 waste consists of non-line and line-generated metal wastes in the form of gloveboxes, glovebox windows, furnaces, piping, angle iron, tanks, respirator filters, ultrasonic cleaners, control panels, electronic instrumentation, vacuum sweepers, pumps, motors, trays, hotplates, empty cans, power tools, hand tools, etc.

WASTE PACKAGING: After leaching of the IDC 481 waste, the metal was allowed to dry and double-bagged prior to placement in a 55-gallon drum that was lined with up to three polyethylene drum bags and a cardboard liner. Since approximately 1972, the 55-gallon drum was lined with a 90-mil liner which was then lined with the up to three plastic drum bags and a cardboard liner. All bag closures are by the twist and tape method.

The IDC 480 waste was usually triple-contained in plastic before being placed in a prepared 55-gallon drum. Any sharp metal edges were usually taped before packaging. Nonline-generated wastes were usually placed directly into the

prepared 55-gallon drum. The 55-gallon drums were lined with one or two plastic drum bags. Since approximately 1972, the drums were lined with a 90-mil rigid polyethylene liner that was lined with the two plastic drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of toxic or corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR and to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of five layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories II.1A5 (drums) and II.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0328 for a single drum and 0.0314 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.4592 for drums and 0.2512 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
480	Light Metal	Rocky Flats Plant
481	Leached Light Non-SS Metal	Rocky Flats Plant

CONTENT CODE: ID 218A

CONTENT DESCRIPTION: INEL Stored TRU Glass Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of leached glass neutron absorbers (Raschig rings).

GENERATING SOURCES: The glass waste was generated by all of the plutonium processing areas.

WASTE FORM: This waste is in the form of glass Raschig rings. The Raschig rings are borated glass rings approximately 1.75 inches high by 1.50 inches in diameter with a wall thickness of approximately 0.25 inches.

WASTE PACKAGING: Contaminated Raschig rings were removed from a liquid storage tank and leached. The rings were allowed to air dry before repackaging. The leached Raschig rings were contained in up to three plastic bags and placed in a Fibre-Pak. The Fibre-Pak was then placed in a 55-gallon drum with a 90-mil rigid liner (depending on the packaging date) and one or two drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with
| WIPP Waste Acceptance Criteria. Container integrity is determined by visual
| examination and ultrasonic measurements. Compliance with all criteria is
| verified by SWEPP quality control inspection and statistical sampling of waste
| certified for WIPP.

| SHIPPING CATEGORY: This content code has been packaged with a maximum of five
| layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a

drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories II.1A5 (drums) and II.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0328 for a single drum and 0.0314 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.4592 for drums and 0.2512 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
442	Leached Raschig Rings	Rocky Flats Plant

CONTENT CODE: ID 218B

CONTENT DESCRIPTION: INEL Stored TRU Glass Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of waste glass from laboratory glassware to glass equipment.

GENERATING SOURCES: The glass waste was generated by all of the plutonium processing areas.

WASTE FORM: This waste is in the form of glass sample vials, bottles, equipment such as ion exchange columns and dissolver pots, laboratory glassware such as flasks and beakers, and glovebox windows.

WASTE PACKAGING: The glass was packaged in several different ways. Whole or broken glass may have been packaged in 1-gallon polyethylene bottles; Fibre-Paks (the glass may be loose or contained in plastic bags inside the Fibre-Paks); or double contained in plastic bags with the outside of the bag taped for protection against sharp edges, or simply taped together before it is removed from the glovebox. All waste was double contained in plastic when it was removed from the glovebox, regardless of the initial packaging. Since approximately 1972, the waste was placed in a 55-gallon drum with a 90-mil liner that was lined with one or two drum bags. Prior to that the 90-mil liners were not used, but the 55-gallon drums were still lined with one or two drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with WIPP
| Waste Acceptance Criteria. Container integrity is determined by visual
| examination and ultrasonic measurements. Compliance with all criteria is

verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of six layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories II.1A6 (drums) and II.1B6 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0272 for a single drum and 0.0262 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.3808 for drums and 0.2096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
440	Glass	Rocky Flats Plant

CONTENT CODE: ID 219A

CONTENT DESCRIPTION: INEL Stored TRU Filter Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of absolute filters used for filtering glovebox intake and exhaust air, high efficiency particulate air (HEPA) filters, Chemical Warfare Service (CWS) filters, fiberglass and asbestos filter media, asbestos pipe insulation and asbestos gloves and fireblankets.

GENERATING SOURCES: This waste was generated at all plutonium areas at Rocky Flats Plant. The majority of the waste drums were generated by Plutonium Recovery Operations, Chemical Operations Support, and Analytical Laboratories.

WASTE FORM: The majority of the absolute filters (IDC 335) were 8 x 8 x 6 inches. IDC 335 also includes some 8 x 8 x 4-inch and 12 x 12 x 6-inch filters. The CWS filters (IDC 490) includes 24 x 24 x 12-inch HEPA filters, 8 x 6-inch diameter CWS filters, 24 x 24 x 2-inch and 10 x 10 x 2-inch prefilters, and 8 x 8 x 6-inch and 8 x 8 x 4-inch absolute filters. Filter frames are wood, particle board or aluminum. The filter media is usually either fiberglass or asbestos. Other asbestos materials such as pipe insulation gloves and fireblankets is included as IDC 338.

WASTE PACKAGING: The filters (IDC 335) removed from a glovebox were double contained in plastic bags. The sealed bags were placed in a 55-gallon drum lined with one or two drum bags. Starting in approximately 1972, the 55-gallon drums were lined with a 90-mil rigid polyethylene liner that was then lined with one or two drum bags. All bag closures are by the twist and tape method.

IDC 490 filters were single or double bagged, sealed with tape, and placed in a drum prepared the same as IDC 335 drums. All bag closures are by the twist and tape method.

The majority of waste drums (IDC 338) were filter media generated by splitting absolute and HEPA filters apart. The filter media and frames were disposed of separately. Filter media were either placed into a 1-gallon polyethylene bottle and double bagged out of the glovebox or placed directly into a polyethylene bag which was taped closed and then bagged out of the glovebox into one plastic bag. Each bag was taped closed and placed into a 55-gallon drum that was prepared the same as IDC 335 drums. All bag closures are by the twist and tape method.

Some drums (IDC 338) contain insulation. Non-line generated waste, such as pipe insulation, was placed directly into prepared 55-gallon drums. If the contamination levels were high, the insulation may have been wrapped with tape. Line generated waste, such as asbestos gloves and fireblankets, was double contained in plastic bags and then placed in prepared 55-gallon drums. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

| TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20
| per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the
following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Filters (8" x 8")	Rocky Flats Plant
338	Insulation and CWS Filter Media	Rocky Flats Plant
490	CWS Filters	Rocky Flats Plant

CONTENT CODE: ID 221A

CONTENT DESCRIPTION: INEL Stored TRU Solid Organic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of Benelex, which was used for neutron shielding, and Plexiglas glovebox windows. The Benelex was usually coated with fire-retardant paint and sometimes had lead sheeting attached to it. In addition to Plexiglas, some leaded glass may be present.

GENERATING SOURCES: The majority of the waste drums were generated from maintenance and renovation projects by Plutonium Recovery Operations.

WASTE FORM: Benelex is a dense, laminated, lignocellulose hardboard made from wood chips and particles. The Benelex in this waste is usually two inches thick. The Benelex was used as neutron shielding and weighs approximately 90 lb/ft³.

Plexiglas is a trade name for a transparent plastic material made from methyl methacrylate. Plexiglas glovebox windows are usually two to four inches thick and are various sizes.

WASTE PACKAGING: IDC 302 replaced IDC 464 during 1973. The majority of the drums contain Benelex gloveport doors, etc. Plexiglas and other types of glass may be found mixed in with the Benelex or segregated and contained in other waste drums with the same IDC. Contaminated Benelex or Plexiglas was usually wrapped in plastic and placed in a 55-gallon drum lined with one or two drum bags. Starting in approximately 1972, the plexiglass was bagged-out in two bags prior to placement in 55-gallon drums which were lined with a 90-mil rigid polyethylene liner that was then lined with one or two drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB

is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
464	Benelex and Plexiglas	Rocky Flats Plant

CONTENT CODE: ID 222A

CONTENT DESCRIPTION: INEL Stored Solid Inorganic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITES: Rocky Flats Plant

WASTE DESCRIPTION: The Leco crucible waste consists of silicate-based ceramic crucibles and caps that were used for analyzing plutonium samples. The crucibles are one-inch high by one-inch diameter.

GENERATING SOURCES: The Leco crucible waste was generated by the Plutonium Analytical Laboratories at the Rocky Flats Plant.

WASTE FORM: The Leco crucible waste contains one-inch high by one-inch diameter silicate-based ceramic crucibles that were used for analyzing plutonium. Some Leco crucibles contain an accelerator (iron, tin, copper, titanium, stainless steel, etc.) used to calibrate the analyzer. The plutonium and accelerating metal are fused into the Leco crucible.

WASTE PACKAGING: The Leco crucibles were placed in a one-gallon metal paint can, the lid placed on and sealed with tape, and the paint can was double bagged out of the glovebox. The paint cans were then placed in a 55-gallon drum lined with two plastic drum bags. Since 1972, a 90-mil rigid liner was used inside each 55-gallon drum and the two plastic drum bags were placed inside the rigid plastic liner. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted. If the waste contains high density material, such as lead, that is opaque to the RTR system, that waste package will not be certified because residual liquids may escape detection.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB
| is fitted with at least two and up to four carbon composite filters. At SWEPP,
| each waste drum is weighed and evaluated by RTR to determine compliance with

WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code has been assigned shipping categories II.2AM (drums) and II.2BM (overpacked in a SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs.

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
370	Leco Crucibles	Rocky Flats Plant

CONTENT CODE: ID 222B

CONTENT DESCRIPTION: INEL Stored Solid Inorganic Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The firebrick waste consists of whole and broken pieces of construction bricks, cinderblocks, and incinerator firebrick.

GENERATING SOURCES: The firebrick waste was generated by Plutonium Recovery Operations and Size Reduction at the Rocky Flats Plant.

WASTE FORM: The firebrick waste from the Plutonium Recovery Incinerator is a high-alumina, high-strength, Class F brick manufactured by Plibrico (trade name: Plicast 40). Typical brick composition (expressed as weight in percent oxides) is: Al_2O_3 -95.67, CaO -3.60, Fe_2O_3 -0.10, MgO -0.08, SiO_2 -0.03, TiO_2 -0.01, and alkalies-0.28. The waste may also contain cinderblocks and construction brick.

WASTE PACKAGING: The firebrick waste was packaged by a variety of methods. It was placed directly into a prepared 55-gallon drum, it was double contained in plastic before placement in the prepared 55-gallon drum, or it was double contained in plastic and then placed into a Fibre-Pak before placement into a prepared 55-gallon drum. The 55-gallon drums were lined with one or two plastic drum bags. Cardboard liners were sometimes used to line the inner drum bags. Since 1972, the drums were lined with 90-mil rigid polyethylene liners and lined with one or two plastic drum bags. Some drums contained as many as three or four inner bags and one or two drum liner bags, but never exceeded five total layers of plastic. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, portland cement, vermiculite or clay was added. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted. If the waste contains high density material, such as lead, that is opaque to the RTR system, that waste package will not be certified because residual liquids may escape detection.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of five layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned shipping categories II.1A5 (drums) and II.1B5 (overpacked in a SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0328 for a single drum and 0.0314 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.4592 for drums and 0.2512 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC.

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
371	Firebrick	Rocky Flats Plant

CONTENT CODE: ID.223A

CONTENT DESCRIPTION: INEL Stored TRU Leaded Rubber Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Leaded rubber waste consisting of glovebox gloves and aprons generated by all plutonium areas. Limited amounts of unleaded gloves, lead bricks, and lead sheeting may be included.

GENERATING SOURCE(S): Leaded materials are generated by all plutonium areas. From 1971 to 1973, the waste was packaged by each generating area. Since 1974, the Size Reduction Facility (Building 776) has processed all leaded items.

WASTE FORM: Analysis of common leaded glovebox gloves and aprons is as follows:

<u>Item</u>	<u>Thickness</u> <u>-(mil)</u>	<u>Equivalency</u> <u>(mm)</u>	<u>Lead %</u> <u>(wt)</u>	<u>Weight per</u> <u>Item (lb)</u>
Glovebox Glove	30	0.1	Unknown	1.8
Glovebox Glove	50	0.1	42% Pb ₃ O ₄	2.7
Glovebox Glove	60	0.2	55% Pb ₃ O ₄	3.0
Glovebox Glove	90	0.35	56% Pb ₃ O ₄	5.5
Apron	--	0.25	78% Pb ₂ O	5.25

WASTE PACKAGING: Glovebox gloves, aprons, and other leaded items from areas other than the Size Reduction Facility were double contained in plastic bags, and each bag was sealed with tape. The bagged waste was then placed into prepared waste drums. Leaded items processed by size reduction were placed directly into prepared waste drums after processing.

DRUM PREPARATION:

1970-1972: Each 55-gallon drum was lined with up to two plastic bags. After filling with waste packages, each plastic drum bag was sealed by the twist and tape method.

1972-PRESENT: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with up to two plastic drum bags. After filling with waste, each drum bag was sealed by the twist and tape method. The rigid liner lid and drum lid were then installed.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron assay (PAN). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of residual liquids (<1% volume) is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified TRU waste.

EXPLOSIVE/COMPRESSED GASES: No explosives or compressed gases have been identified by characterization of waste streams. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified TRU waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste.

CORROSIVES: No corrosive materials have been identified by characterization of waste streams. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified TRU waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in

greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is vented at the Drum Venting Facility and a carbon composite filter installed. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with the WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Additional verification of compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>Description</u>	<u>Generator</u>
463	Gloves, Drybox	Rocky Flats Plant
339	Leaded Rubber Gloves and Aprons	Rocky Flats Plant

CONTENT CODE: ID 224A

CONTENT DESCRIPTION: INEL Stored TRU Pyrochemical Salt Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of fused halide salt mixtures that were used for pyrochemical and electrochemical separation and purification processes. The salt was generated from cleanup of spent salts.

GENERATING SOURCES: Each of these IDCs originated at the Rocky Flats Plant. The waste was generated by the Process Chemistry and Development Group in Building 776.

WASTE FORM: These fused halide salts are primarily mixtures of NaCl and/or KCl and/or CaCl₂. Some of the salts also contain some MgCl₂, CaF₂, or CaO. Some examples of the salt mixtures are:

Molten Salts

NaCl (47%), KCl (47%), MgCl₂ (6%)

CaCl₂ (64%), CaF₂ (23%), CaO (13%)

CaCl₂ (74%), KCl (26%)

KCl (10%), NaCl (10%), MgCl₂ (80%)

Electrorefining Salts

CaCl₂ (46%), NaCl (46%), MgCl₂ (8%)

KCl (48.5%), NaCl (48.5%), MgCl₂ (3%)

Gibson Salts

CaCl₂ (74%), KCl (26%)

WASTE PACKAGING: The waste (IDC 410) was packaged in produce cans (approximately one-quart) with the lids rolled-seam sealed to the can. Each can was bagged out of the glovebox in double plastic bags and placed in a 55-gallon drum that

contains a 90-mil liner and one or two drum bags. All bag closures are by the twist and tape method.

IDCs 411 and 412 wastes were packaged the same as IDC 410 except that after the can was bagged out of the glovebox in a double-bag, it was placed in a stainless steel can before placement into the drum with the 90-mil liner and two drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was dry when packaged. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code has been assigned to shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
410	Molten Salts	Rocky Flats Plant
411	Electrorefining Salts	Rocky Flats Plant
412	Gibson Salts	Rocky Flats Plant

CONTENT CODE: ID 225A

CONTENT DESCRIPTION: INEL Stored TRU Combustible and Noncombustible Waste

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of a variety of different waste forms such as dissolved laboratory samples absorbed in Oil-Dri, uranium pellets, plutonium sources, glassware, gloves, Kimwipes and used equipment.

GENERATING SOURCES: The Rocky Flats Plant waste originated from the americium processing glovebox by Plutonium Recovery Operations.

WASTE FORM: The RFP waste consists of piping, flanges, valves, tools, glassware, filters, polyethylene bottles, glovebox gloves, paper and plastics.

WASTE PACKAGING: The waste was bagged out of the glovebox in one or two plastic bags. Most of the waste was then placed in a 13-inch high by 15.5-inch diameter Fibre-Pak. The Fibre-Paks were then placed in a prepared waste drum. In approximately 1972, use of the 90-mil rigid drum liner began. The rigid drum liner was lined with one or two plastic drum bags. Prior to use of the rigid drum liner, the drum was lined with two plastic drum bags. Lead shielding and lead taping may have been used to reduce radiation exposure levels. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was

verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned shipping categories III.1A4 (drums) and III.1B4 (overpacked in a SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC.

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
241	Americium Process Residues	Rocky Flats Plant

CONTENT CODE: ID 225B

CONTENT DESCRIPTION: INEL Stored TRU Glass Waste with Oil Residues

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This waste consists of unleached glass neutron absorbers (Raschig rings).

GENERATING SOURCES: The glass waste was generated by all of the plutonium processing areas.

WASTE FORM: This waste is in the form of glass Raschig rings. The Raschig rings are borated glass rings approximately 1.75 inches high by 1.50 inches in diameter with a wall thickness of approximately 0.25 inches.

WASTE PACKAGING: The borated glass Raschig rings were removed from liquid storage tanks that had been flushed and drained of all liquid. The Raschig rings were triple-contained in plastic bags and placed in a Fibre-Pak. The Fibre-Paks were placed in a 55-gallon drum with one or two drum bags. Since approximately 1972, the drums also contained a 90-mil rigid liner with the drum bags inside the liner. All bag closures are by the twist and tape method.

Raschig rings that were still contaminated with above discard amounts of plutonium were further processed by leaching and were packaged as Content Code ID 218A (IDC 442).

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: The waste was usually dry when packaged. If any moisture was detected, absorbent such as Oil-Dri, is added. Absence of free liquids was verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1% volume) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner, if present), and a carbon composite filter is installed in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is

verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has been packaged with a maximum of five layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A5 (drums) and III.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0164 for a single drum and 0.0157 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2296 for drums and 0.1256 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
441	Unleached Raschig Rings (Oil Residue)	Rocky Flats Plant

CONTENT CODE: ID 226A

CONTENT DESCRIPTION: INEL Stored Solidified Organic Process Solids

STORAGE SITE: Idaho National Engineering Laboratory

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium and americium. The washed resin was mixed with portland cement and water to form a solid mass.

GENERATING SOURCES: The majority of the resins were generated by Plutonium Recovery Operations at Rocky Flats Plant. Some of the resins were generated by research and development groups and analytical laboratories.

WASTE FORM: The cemented resins are a polystyrene and divinylbenzene copolymer. The anion resins are DOWEX 1x4, DOWEX 11, and Rohm and Haas Amberlite IRA-938. The cation resin is DOWEX 50x8. All resins are in the 20 to 100-mesh range. The resins were leached with hot 0.35 N nitric acid to remove radioactive material, washed with water twice to remove nitric acid, vacuum-dried, cemented, and packaged.

WASTE PACKAGING: The resin waste was cemented by mixing 1 liter of portland cement, 0.5 liters of water, and 1 liter of washed resin into a slurry. The slurry was poured into a 1-gallon polyethylene bottle containing approximately 0.5 inches of dry portland cement and allowed to cure. Another 0.5-inch layer of dry portland cement was placed on top of the hardened resin/cement mixture before the bottle was capped. Each bottle was double bagged out of the glovebox and placed into a 55-gallon drum that was lined with a 90-mil rigid polyethylene liner and one or two plastic drum bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste drum is assayed by passive-active neutron (PAN) assay. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and total decay heat (plus error).

FREE LIQUIDS: Waste may have been damp when packaged. Portland cement was added to absorb any free liquid. Absence of free liquids is verified by real-time radiography (RTR) and the INEL Sampling Program for SWEPP-certified waste. Minor residual liquids (<1 volume %) are permitted.

EXPLOSIVES/COMPRESSED GASES: No explosives or compressed gases have been identified by waste characterization. Absence of these materials is verified by RTR and the INEL Sampling Program for SWEPP-certified waste.

PYROPHORICS: Nonradioactive pyrophoric materials have not been identified by characterization of the waste streams. Absence of pyrophoric materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CORROSIVES: No corrosive materials have been identified by waste characterization. Absence of corrosive materials is verified by the INEL Sampling Program for SWEPP-certified waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

| PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content
| code will be aspirated using one of the three options described in Appendix
| 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1
| (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace
| gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas
| sampling during aspiration.)

| ADDITIONAL CRITERIA: Each waste drum is remotely vented (drum and rigid liner,
| if present), and a carbon composite filter is installed in the lid. Each SWB

is fitted with at least two and up to four carbon composite filters. At SWEPP, each waste drum is weighed and evaluated by RTR to determine compliance with WIPP Waste Acceptance Criteria. Container integrity is determined by visual examination and ultrasonic measurements. Compliance with all criteria is verified by SWEPP quality control inspection and statistical sampling of waste certified for WIPP.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code has been assigned to shipping categories III.1A4 (drum) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
432	Resin, Leached and Cemented	Rocky Flats Plant

CONTENT CODE: LA 111A

CONTENT DESCRIPTION: Concreted Aqueous Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent from the processing of plutonium at the Los Alamos Plutonium Facility (TA-55) is treated in Room 60 of TA-50-1. The resultant sludge is packaged as content code LA 111A. The final waste product is obtained by mixing the TRU sludge with portland cement.

GENERATING SOURCE: The waste originates from Technical Area 50-1 (TA-50-1) at LANL.

WASTE FORM: Solidified aqueous waste is the residue from treating blended acidic and caustic aqueous liquid radioactive waste by use of calcium hydroxide, ferric sulfate and a flocculation aid. This treatment produces a thin caustic sludge (approximately 25% solids) that is always alkaline and compatible with portland cement. The final cemented waste monolith is produced by tumbling 55-gallon drums containing empirically determined quantities of sludge, portland cement, vermiculite and sodium silicate.

WASTE PACKAGING: The waste is placed into a 55-gallon drum. A 5-mil polyethylene sleeve is installed in the drum for contamination control while adding the sludge. This sleeve is not considered to be part of the packaging because the bottom of the sleeve is open, and the top is folded over and not taped.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge from each batch is taken to determine the amount and identity of the radionuclides in the sludge. The sludge sample is analyzed using a radiochemical assay method. The results of the analysis are expressed in terms of curies of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The TRU sludge is cast into a solid monolith by mixing portland cement and sludge in a controlled process per written procedures. The final concrete waste form contains no free liquids. Inspected drums have demonstrated all liquid is fixed in the concrete. A sample of drums from each batch will be real-time radiographed to ensure the absence of free liquids prior to shipment to WIPP.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system which precludes any mechanism in the process from producing compressed gas or the introduction of extraneous material such as pressure vessels or explosives. In addition, neither the ingredients nor the finished concrete is explosive. Explosives are prohibited at the TA-50-1 that generates this waste form.

PYROPHORIC: No pyrophoric materials have been identified in this waste form and are prohibited by TRU waste packaging procedures.

CORROSIVES: The waste exhibits none of the characteristics specified in 40 CFR 261 (Subpart C) and is not listed in Subpart D. Ferric sulfate and sodium hydroxide are corrosive when in solution but the final form of the waste is a dry, solid concrete monolith.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged in 55-gallon drums with only an open plastic sleeve which is not taped. This content code is assigned to the shipping categories I.2A0 (drums) and I.2B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2536 for a single drum and 0.1793 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 3.5504 for drums and 1.4344 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
002	Solidified Aqueous Waste	Los Alamos National Lab

CONTENT CODE: LA 111B

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55) is treated in building TA-50-1. The resultant sludge is packaged as content code LA 111B.

GENERATING SOURCE: The waste originates from TA-50-1 (Los Alamos National Laboratory Liquid Waste Treatment Facility).

WASTE FORM: The sludge is produced by vacuum filtration of solids from pretreated aqueous waste slurry. The filter agent is an inert diatomaceous earth medium that accumulates on a rotation drum. Solids are trapped on the surfaces of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped filtrate is skimmed off as wet sludge. The precipitated solids are chiefly metallic hydroxide with a pH of 10-12.

WASTE PACKAGING: The waste is placed into a 55-gallon drum which is lined with a 90-mil thick HDPE liner (lid has a one-inch diameter hole) and a 5-mil polyethylene bag. The 5-mil polyethylene bag is not considered as part of the waste packaging but is used for contamination control. In addition, this bag is not sealed with tape.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge from each batch is taken to determine the amount and identity of the radionuclides in the sludge. The sludge sample is analyzed using a radiochemical assay method. The results of the analysis are expressed in terms of curies of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The prepared drum is initially filled with approximately 6-8 pounds of portland cement. The sludge is then placed into the drum, and an additional six to eight pounds of cement is then added on top of the sludge. The portland cement is used to absorb any free liquids that may come out of the sludge during storage at LANL and transportation to WIPP. Recent studies conducted at LANL on these drums have shown the absence of any free liquids as defined by the WIPP WAC. A sample of drums from each batch will be examined by real-time radiography (RTR) to ensure the continued absence of any free liquids prior to shipment to WIPP.

EXPLOSIVES/COMPRESSED GASES: The waste is produced in a closed system which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures, or compressed gases have been identified in this waste. Explosives are prohibited at TA-50-1 that generates this waste form.

PYROPHORIC: No pyrophoric materials have been identified in this waste form. Pyrophorics are prohibited by TRU Waste Procedures.

CORROSIVES: No corrosives materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a ph of 10-12. Using the WIPP WAC for corrosivity in 40 CFR 261, this waste form is not considered a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged in 55-gallon drums with only one plastic bag that is not taped, but folded over the waste. This content code is assigned to the shipping categories I.2A0 (drums) and I.2B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2536 for a single drum and 0.1793 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 3.5504 for drums and 1.4344 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
003	Dewatered Sludge	Los Alamos National Lab

CONTENT CODE: LA 114A

CONTENT DESCRIPTION: Solidified Inorganic Process Solids

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent and leached solids are from the processing of plutonium at the Los Alamos Plutonium Facility (TA-55). The resultant waste is immobilized in gypsum cement as content code LA 114A.

GENERATING SOURCE: The waste originates from Technical Area 55 (TA-55) at LANL.

WASTE FORM: Solidified process solids (process residue from evaporator bottom and other discardable solutions, process leached solids, ash, filter cakes, salts, metal oxides, fines, etc.) are immobilized in gypsum cement to form a noncorrosive solid matrix in a 55-gallon drum or one-gallon cans.

WASTE PACKAGING: This content code is placed into a 55-gallon drum prepared as described below:

May 1987 - September 1988: One-Gallon Cement Fixation Process

In the one-gallon cement fixation process, the waste was mixed with a cement powder in one-gallon cans to form a noncorrosive solid matrix. The one-gallon cans served only as mixing containers for the cement parts and not as the ultimate packaging confinement. The one-gallon cans were then packaged in a 55-gallon drum. The packaging within the drum included a 1/16-inch thick lead sheet, a 5-mil polyethylene bag, and a 12-mil PVC vinyl bag that contains the cans. The lead serves as a shielding material for gamma radiation to reduce personnel exposure during drum mixing and subsequent drum handling. The lead shielding consists of two disks, placed at the top and bottom of a 1/16-inch thick lead sheet fitted to the inside circumference of the drum wall. All bag closures are by the twist and tape method.

July 1988 - Present: 55-Gallon Cement Fixation Process

In the 55-gallon cement fixation process, the waste is mixed with a cement powder in a 1/8-inch thick polyethylene mixing container to form a noncorrosive solid monolith. The mixing container is used only as a container for the cement paste and is not considered as an integral part of the packaging. The packaging within the drum includes a 1/16-inch thick lead sheet and two 12-mil PVC vinyl bags. The inner 12-mil bag contains the 1/8-inch poly mixing container. One or more two-inch thick styrofoam disks are placed on top of the 12-mil outer bag as bracing for the top lead disk. The lead serves as a shielding material for gamma radiation to reduce personnel exposure during drum mixing and subsequent drum handling. The lead shielding consists of two disks, placed at the top and bottom of a 1/16-inch thick lead sheet fitted to the inside circumference of the drum wall. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Aqueous effluent and other discardable solutions are sampled for analysis by radiochemical assay methods. Process leached solids, ash, filter cake, salts, metal oxides and other leachable solids are assayed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. The results of the assays are expressed in the terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The TRU aqueous effluent is cast into a solid monolith by mixing with gypsum cement in a controlled process per written procedures. Each monolith drum is inspected for hardness and the absence of free liquids prior to drum closure. The final concrete waste form contains no free liquids.

EXPLOSIVE/COMPRESSED GASES: Neither the ingredients nor the finished cement are explosive. Explosives are neither used nor permitted within TA-55. All materials entering TA-55 are inspected by Protective Force personnel at the front gate. No pressure vessels or spray cans that can contain gases under pressure enter these waste streams. Strong acids that might react with other materials

to generate gases are neutralized so that reaction is no longer possible. All waste packages are vented.

PYROPHORIC: All pyrophorics will be passivated prior to mixing with aqueous solution-cement powder combinations. Any pyrophorics placed in this aqueous system would react with the water. Immobilization in cement renders pyrophorics non-reactive.

CORROSIVES: All aqueous effluents and other discardable solutions are neutralized to a pH between 2 and 6 with a caustic solution per written procedures. This neutralized solution is then mixed with gypsum cement to form a noncorrosive solid monolith.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of twist and taped plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code has been assigned shipping categories I.1A2 (drums) and I.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1594 for a single drum and 0.1207 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.2316 for drums and 0.9656 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
006	Solidified Process Solids	Los Alamos National Lab

CONTENT CODE: LA 115A

CONTENT DESCRIPTION: TRU Graphite Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Graphite TRU waste is generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant graphite TRU waste is packaged as content code LA 115A.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: TRU graphite waste consists of discarded graphite mold and furnace equipment from plutonium casting operations, etc., which may contain some small fraction of combustible waste such as plastics (mainly packaging), etc.

WASTE PACKAGING: Graphite waste is placed in tin or stainless steel cans which are placed in two to three layers of plastic bags in a 55-gallon drum. The drum liner bags are 5-mil PVC. Each bag is sealed by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste item is assayed prior to placement into a drum. The filled drum is then assayed. All assays are performed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. Which instrument is used depends on the matrix and nuclide content of the drum. The results of the assay are expressed in terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and approved procedures. Special emphasis during waste inspection is always applied to containers such as bottles and cans. Real-time radiography (RTR) examination

of a sample of these drums will be performed to verify that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures.

CORROSIVES: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code has been assigned shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
005 P2G	TRU Graphite Waste	Los Alamos National Lab

CONTENT CODE: LA 116A

CONTENT DESCRIPTION: Combustible Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Combustible TRU waste is generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant combustible TRU waste is packaged as content code LA 116A.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: Combustible solids consist of paper, rags, plastic, rubber, etc., which may contain some small fraction of noncombustible solids as scrap metals, etc.

WASTE PACKAGING: Waste is placed either directly in the drum or with a maximum of two layers of plastic bags. The waste is placed into a 55-gallon drum that is lined with two 5-mil polyethylene bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Drums are assayed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. The instrument used depends on the matrix and nuclide content of the drum. The results of the assay are expressed in terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and approved procedures. Special emphasis during waste inspection is always applied to containers such as bottles and cans. Real-time radiography (RTR) examination

of a sample of these drums will be performed to verify that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures.

CORROSIVES: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged with a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to the shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
004	Combustible Waste	Los Alamos National Lab

CONTENT CODE: LA 117A

CONTENT DESCRIPTION: TRU Metal Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: TRU metal waste is generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant TRU metal waste is packaged as content code LA 117B.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: TRU metal waste consists of motors, pumps, tools, process equipment, etc., which may contain some small fraction of combustible waste, such as plastics (mainly packaging), etc.

WASTE PACKAGING: The waste is packaged in a maximum of four layers of plastic bagging prior to placement in the Standard Waste Box (SWB). A 12-mil vinyl (PVC) sleeve is used as a bag-out bag with one end sealed directly to the inside of the SWB body. After the SWB is filled, the vinyl sleeve is gathered with a hose clamp and cut to form a horsetail. This sleeve is not considered to be part of the packaging. All bag liners are sealed by taping along the folds.

ASSAY: SWBs are assayed by means of portable nondestructive assay hold-up system according to written procedures. The results of the assay are expressed in terms of grams of each radionuclide present. Prior to shipment to WIPP, each SWB will then be assayed by a passive-active neutron (PAN) assay system. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and approved procedures. Special emphasis during waste inspection is always applied to motors and pumps to assure that all liquids are properly drained and/or solidified.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures.

CORROSIVE: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a SWB. This content code has been assigned shipping category II.1C4 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0690 for a single Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.1380 for Standard Waste Boxes. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
005 14	TRU Metal Waste	Los Alamos National Lab

CONTENT CODE: LA 118A

CONTENT DESCRIPTION: TRU Glass Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: TRU glass waste is generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant TRU glass waste is packaged as content code LA 118A.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: TRU glass waste consists of discarded labware, windows, bottles, etc., which may contain some small fraction of combustible waste, such as plastics (mainly packaging), etc.

WASTE PACKAGING: The waste is packaged in tin or stainless steel cans and bagged out in one layer of plastic bagging prior to placement in the drum. The drum used is a 55-gallon drum lined with two 5-mil polyethylene bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste item is assayed prior to placement into a drum. The filled drum is then assayed. All assays are performed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. Which instrument is used depends on the matrix and nuclide content of the drum. The results of the assay are expressed in terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and approved procedures. Special emphasis during waste inspection is always applied to containers such as bottles and cans. Real-time radiography (RTR) examination

of a sample of these drums will be performed to verify that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures.

CORROSIVES: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code has been assigned shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
005 LG	TRU Glass Waste	Los Alamos National Lab

CONTENT CODE: LA 123A

CONTENT DESCRIPTION: TRU Leaded Rubber Waste and TRU Metal

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: TRU leaded rubber and metal wastes are generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant TRU leaded rubber and metal wastes are packaged as content code LA 123A.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: Lead-lined glovebox gloves are discarded along with metal waste (discarded metals, motors, tools, etc.)

WASTE PACKAGING: The waste is double bagged prior to placement in 55-gallon drums. The drum is lined with two 5-mil polyethylene bags. Occasionally a 1/8-inch poly liner is used in the packaging of heavy, bulky, sharp-edged metal items (liner is used without a lid). All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste item is assayed prior to placement into a drum. The filled drum is then assayed. All assays are performed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. Which instrument is used depends on the matrix and nuclide content of the drum. The results of the assay are expressed in terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and approved procedures. Special emphasis during waste inspection is always applied

to containers such as bottles and cans. Real-time radiography (RTR) examination of a sample of these drums will be performed to verify that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures.

CORROSIVES: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code has been assigned shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUFAC-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
005 P1	TRU Loaded Rubber and Metal Waste	Los Alamos National Lab

CONTENT CODE: LA 124A

CONTENT DESCRIPTION: TRU Pyrochemical Salt

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: TRU pyrochemical salt waste is generated from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55). The resultant TRU pyrochemical salt waste is packaged as content code LA 124A.

GENERATING SOURCE: The waste originates from Technical Area-55 (TA-55) at LANL.

WASTE FORM: TRU pyrochemical salt waste consists of used chloride salts from pyrochemical processes such as electrowinning, molten salt extraction, salt stripping, fluoride reduction, direct oxide reduction, etc., which may contain some small fraction of combustible waste such as plastics (mainly packaging), etc.

WASTE PACKAGING: The waste is packaged in tin or stainless steel cans and bagged-out in one layer of plastic prior to placement in the 55-gallon drum. The drum is lined with two 5-mil polyethylene bags. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Each waste item is assayed prior to placement into a drum. The filled drum is then assayed. All assays are performed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. Which instrument is used depends on the matrix and nuclide content of the drum. The results of the assay are expressed in terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Visual inspections of each waste item for free liquids are performed by certified TRU waste inspectors in accordance with written and

approved procedures. Special emphasis during waste inspection is always applied to containers such as bottles and cans. Real-time radiography (RTR) examination of a sample of these drums will be performed to verify that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at TA-55. Only used pressure vessels or spray cans could potentially contain gases under pressure, and they are blocked open by certified TRU waste inspectors in accordance with written and approved procedures.

PYROPHORIC: No pyrophoric materials will be present as determined by visual inspection of each waste item by certified TRU waste inspectors in accordance with written and approved procedures. Any small amounts of pyrophoric materials that could be present in the content code are oxidized at high temperatures in the presence of oxygen.

CORROSIVES: Visual inspections of each waste item for corrosives materials are performed by certified TRU waste inspectors in accordance with written and approved procedures. Corrosive materials identified during this inspection are either neutralized or diverted from the waste stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code has been assigned shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
005 P2S	TRU Pyrochemical Salt Waste	Los Alamos National Lab

CONTENT CODE: LA 125A

CONTENT DESCRIPTION: Mixed Metal Scrap and Incidental Combustibles

GENERATING SITE: Los Alamos National Laboratory - Size Reduction Facility (SRF).

WASTE DESCRIPTION: The waste contains metal equipment, either whole or sectioned, along with its combustible components, and the small volumes of combustibles generated during decommissioning, sectioning and packaging.

GENERATING SOURCE: The waste originates from Technical Area-54 (TA-54) at LANL.

WASTE FORM: Input to the SRF is mostly gloveboxes, process equipment, and ductwork from decommissioning operations. Gloveboxes may come complete with gloves, wiring, plastic or glass windows, plastic wrapping and lead shielding.

WASTE PACKAGING: The waste is placed into a Standard Waste Box (SWB). A 12-mil vinyl (PVC) sleeve is used with as a bag-out bag with one end sealed directly to the inside of the SWB body. After the SWB is filled, the vinyl sleeve is gathered with a hose clamp and cut to form a horsetail. This sleeve is not considered to be part of the packaging.

ASSAY: Input radionuclide content is based on a completed Radioactive Solid Waste Disposal Record (RSWDR), which contains the weight, volume, a description of the waste, and the radionuclide content. Each SWB will then be assayed by a passive-active neutron (PAN) assay system to determine the radionuclide content prior to shipment to WIPP. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The input waste to the SRF is normally dry. The input waste is visually inspected for free liquids during disassembly. Nothing in the size reduction process produces sludges, pyrophoric material, compressed gases or explosives. However, if any free liquids are detected, they are collected and solidified in one-gallon tin cans by stirring with either gypsum or portland cement. The resulting container(s) of concrete is tested for proper

solidification by probing with a rod; then it is placed into the output SWB with the waste it came from.

EXPLOSIVES/COMPRESSED GASES: Explosives and compressed gases are prohibited in this input waste. Absence of forbidden materials is visually verified by the SRF operator in accordance with written and approved procedures.

PYROPHORIC: Pyrophorics are prohibited in this input waste. Absence of forbidden materials is visually verified by the SRF operator in accordance with written and approved procedures. No pyrophoric materials have ever been identified in the material. Pyrophorics are prohibited by SRF TRU Waste Operating Procedures.

CORROSIVES: SRF procedural controls require the SRF operators to bring to the attention of the TRU Waste Operation Section Leader any unusual chemical material found during inspection/disassembly of the input waste. The TRU Waste Operations Section Leader will identify whether the material meets the criteria for corrosivity in 40 CFR 261 and specify its disposition (e.g., neutralization/solidification).

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has only a plastic sleeve attached to the inside walls of the SWB at the bottom and gathered with a hose clamp at the top. This content code is assigned to shipping category III.1C1.

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.3515 for a single Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.7030 for Standard Waste Boxes. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Mixed Metal Scrap and Incidental Combustibles	Los Alamos National Lab

CONTENT CODE: LA 126A

CONTENT DESCRIPTION: Solidified Organic Process Solids

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent and leached solids are from the processing of plutonium at the Los Alamos Plutonium Facility (TA-55). The resultant waste is immobilized in gypsum cement as content code LA 114A.

GENERATING SOURCE: The waste originates from Technical Area 55 (TA-55) at LANL.

WASTE FORM: Solidified process solids (process residue from evaporator bottom and other discardable solutions, process leached solids, ash, filter cakes, salts, metal oxides, fines, etc.) are immobilized in gypsum cement to form a noncorrosive solid matrix in a 55-gallon drum or one-gallon cans.

WASTE PACKAGING: This content code is placed into a 55-gallon drum prepared as described below:

May 1987 - September 1988: One-Gallon Cement Fixation Process

In the one-gallon cement fixation process, the waste was mixed with a cement powder in one-gallon cans to form a noncorrosive solid matrix. The one-gallon cans served only as mixing containers for the cement parts and not as the ultimate packaging confinement. The one-gallon cans were then packaged in a 55-gallon drum. The packaging within the drum included a 1/16-inch thick lead sheet, a 5-mil polyethylene bag, and a 12-mil PVC vinyl bag that contains the cans. The lead serves as a shielding material for gamma radiation to reduce personnel exposure during drum mixing and subsequent drum handling. The lead shielding consists of two disks, placed at the top and bottom of a 1/16-inch thick lead sheet fitted to the inside circumference of the drum wall. All bag closures are by the twist and tape method.

July 1983 - Present: 55-Gallon Cement Fixation Process

In the 55-gallon cement fixation process, the waste is mixed with a cement powder in a 1/8-inch thick polyethylene mixing container to form a noncorrosive solid monolith. The mixing container is used only as a container for the cement paste and is not considered as an integral part of the packaging. The packaging within the drum includes a 1/16-inch thick lead sheet and two 12-mil PVC vinyl bags. The inner 12-mil bag contains the 1/8-inch poly mixing container. One or more 2-inch thick styrofoam disks are placed on top of the 12-mil outer bag as bracing for the top lead disk. The lead serves as a shielding material for gamma radiation to reduce personnel exposure during drum mixing and subsequent drum handling. The lead shielding consists of two disks, placed at the top and bottom of a 1/16-inch thick lead sheet fitted to the inside circumference of the drum wall. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Aqueous effluent and other discardable solutions are sampled for analysis by radiochemical assay methods. Process leached solids, ash, filter cake, salts, metal oxides and other leachable solids are assayed by means of a thermal neutron coincidence counter or segmented gamma scan counter according to written procedures. The results of the assays are expressed in the terms of grams of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The TRU aqueous effluent is cast into a solid monolith by mixing with gypsum cement in a controlled process per written procedures. Each monolith drum is inspected for hardness and the absence of free liquids prior to drum closure. The final concrete waste form contains no free liquids.

EXPLOSIVE/COMPRESSED GASES: Neither the ingredients nor the finished cement are explosive. Explosives are neither used nor permitted within TA-55. All materials entering TA-55 are inspected by Protective Force personnel at the front gate. No pressure vessels or spray cans that can contain gases under pressure

enter these waste streams. Strong acids that might react with other materials to generate gases are neutralized so that reaction is no longer possible. All waste packages are vented.

PYROPHORIC: All pyrophorics will be passivated prior to mixing with aqueous solution-cement powder combinations. Any pyrophorics placed in this aqueous system would react with the water. Immobilization in cement renders pyrophorics non-reactive.

CORROSIVES: All aqueous effluents and other discardable solutions are neutralized to a pH between 2 and 6 with a caustic solution per written procedures. This neutralized solution is then mixed with gypsum cement to form a noncorrosive solid monolith.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in 55-gallon drums or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code has been assigned shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
006	Solidified Organic Process Solids	Los Alamos National Lab

CONTENT CODE: LA 211A

CONTENT DESCRIPTION: Cemented Aqueous Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent from the processing of plutonium at the Los Alamos Plutonium Facility (TA-55) was treated in room 60 of TA-50-1. The resultant sludge was packaged as content code LA 211A. The final waste product was obtained by mixing the TRU sludge with portland cement.

GENERATING SOURCE: The waste originates from Technical Area 50-1 (TA-50-1) at LANL.

WASTE FORM: Solidified aqueous waste was the residue from treating blended acidic and caustic aqueous liquid radioactive waste by use of calcium hydroxide, ferric sulfate, and a flocculation aid. This treatment produced a thin caustic sludge (approximately 25% solids) that was always alkaline and compatible with portland cement. The final cemented waste monolith was produced by tumbling 55-gallon drums containing empirically determined quantities of sludge, portland cement, vermiculite and sodium silicate.

WASTE PACKAGING: The waste was placed into a 55-gallon drum. A 5-mil polyethylene sleeve was installed in the drum for contamination control while adding the sludge. This sleeve is not considered to be part of the packaging because the bottom of the sleeve is open, and the top is simply folded over and not taped.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge from each batch was taken to determine the amount and identity of the radionuclides in the sludge. The sludge sample was analyzed using a radiochemical assay method. The results of the analysis were expressed in terms of curies of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The TRU sludge was cast into a solid monolith by mixing portland cement and sludge in a controlled process per written procedures. The final concrete waste form contains no free liquids. Inspected drums have demonstrated that all liquid is fixed in the concrete. Each drum will be real-time radiographed to assure the absence of free liquids prior to shipment to WIPP.

EXPLOSIVE/COMPRESSED GASES: The waste was produced in a closed system which precluded any mechanism in the process for producing compressed gas or the introduction of extraneous material such as pressure vessels or explosives. In addition, neither the ingredients nor the finished concrete are explosives. Explosives are prohibited at the TA-50-1 where this waste form was generated.

PYROPHORIC: No pyrophoric materials have been identified in this waste form. Pyrophorics were prohibited by waste packaging procedures.

CORROSIVES: This waste exhibits none of the characteristics specified in 40 CFR 261 (Subpart C) and is not listed in Subpart D. Ferric sulfate and sodium hydroxide are corrosive when in solution, but the final form of the waste is a dry, solid concrete monolith.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (the headspace is not sampled for gases), Table 8 for Option 2 (the headspace is sampled at time of venting), and Table 9 for Option 3 (the headspace is sampled at least two weeks after venting).

ADDITIONAL CRITERIA: Upon retrieval from storage, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged in 55-gallon drums with only an open plastic sleeve which is not taped. This content code is assigned to the shipping categories I.2A0 (drums) and I.2B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2536 for a single drum and 0.1793 for an overpacked drum. (See Table 6-1.)
The maximum wattage per TRUPACT-II is 3.5504 for drums and 1.4344 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
002	Solidified Aqueous Waste	Los Alamos National Lab

CONTENT CODE: LA 211B

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Los Alamos National Laboratory

WASTE DESCRIPTION: Aqueous effluent from plutonium processing activities at the Los Alamos Plutonium Facility (TA-55) was treated in building TA-50-1. The resultant sludge was packaged as content code LA 211B.

GENERATING SOURCE: The waste originates from TA-50-1 (LANL Liquid Waste Treatment Facility).

WASTE FORM: The sludge was produced by vacuum filtration of solids from pretreated aqueous waste slurry. The filter agent was an inert diatomaceous earth medium that accumulates on a rotation drum. Solids were trapped on the surfaces of the filter medium as the pretreated solution passed through. The surface of the filter medium with entrapped filtrate was skimmed off as wet sludge. The precipitated solids were chiefly metallic hydroxides with a ph of 10-12.

WASTE PACKAGING: The waste was placed into a 55-gallon drum. As stored from 1979-1987, the drum was lined with a 90-mil thick HDPE liner and a 5-mil polyethylene bag. The 5-mil polyethylene bag was not considered as a part of the waste packaging but was used for contamination control. In addition, this bag was not sealed with tape.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge from each batch was taken to determine the amount and identity of the radionuclides in the sludge. The sludge sample was analyzed using a radiochemical assay method. The results of the analysis were expressed in terms of curies of each radionuclide present. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The prepared drum was initially filled with approximately 6-8 pounds of portland cement. The sludge was then placed into the drum and an additional 6-8 pounds of cement was then added on top of the sludge. The portland cement was used to absorb any free liquids that may have come out of the sludge during storage at LANL. Recent studies conducted at LANL on these drums have shown the absence of any free liquids as defined by the WIPP WAC. Each drum will be examined by real-time radiography (RTR) to ensure the continued absence of any free liquids prior to shipment to WIPP.

EXPLOSIVES/COMPRESSED GASES: The waste was produced in a closed system which precluded the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixture or compressed gases have been identified in this waste. Explosives are prohibited at TA-50-1 where this waste form was generated.

PYROPHORIC: No pyrophoric materials have been identified in this waste form. Pyrophorics are prohibited by waste procedures.

CORROSIVES: No corrosives materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a ph of 10-12. Using the WIPP WAC for corrosivity in 40 CFR 261, this waste form is not considered a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Upon retrieval from storage, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged in 55-gallon drums with only one plastic bag that is not taped, but only folded over the waste. This content code is assigned to the shipping categories I.2A0 (drums) and I.2B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2536 for a single drum and 0.1793 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 3.5504 for drums and 1.4344 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
003	Dewatered Sludge	Los Alamos National Lab

CONTENT CODE: LL 111A

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: Solidified aqueous liquids from process lines.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 419 and 332.

WASTE FORM: Portland cement is used to solidify water-based liquids. Only trace amounts of organics are present in the aqueous waste streams. Acids and caustics are neutralized to pH 8-12 before solidification.

WASTE PACKAGING: The waste is placed into a 55-gallon drum fitted with a 90-mil polyethylene liner. Liquids are solidified in individual 1-gallon metal paint cans which are then placed in 55-gallon drums.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: LLNL assays drums using segmented gamma scan counter or a combination of calorimetry and gamma counting. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: After the solidification agent is added, the waste is allowed to cure for 24 hours. The paint cans are tipped to verify the absence of free liquids prior to installing the lids.

EXPLOSIVES/COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives or compressed gases.

PYROPHORICS: LLNL has certified that waste does not contain any pyrophorics.

CORROSIVES: LLNL has not identified any unneutralized corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged in 1-gallon metal cans that are placed in 55-gallon drums. This content code is assigned to the shipping categories I.1A0 (drums) and I.1B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2060 for a single drum and 0.1457 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.8840 for drums and 1.1656 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
002	Solidified Aqueous Waste	Lawrence Livermore National Laboratory

CONTENT CODE: LL 116A

CONTENT DESCRIPTION: TRU Combustible Waste

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: The waste consists of mixed glovebox bagout waste, non-line generated laboratory trash, some contaminated small equipment and small quantities of solidified liquids and sludges.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 332 and 251.

WASTE FORM: The waste consists mostly of untreated dry solids such as tissues, paper, assorted plastics, glassware, ceramics and metals. Portland cement is used to solidify water-based liquids; Envirostone is used to solidify small amounts of solvents and oil-based liquids. The composition varies considerably, but it is predominantly organics (>90% by weight).

WASTE PACKAGING: The waste was usually placed in a double plastic bag with two horsetails (taped); then it is placed in a 55-gallon drum fitted with a 90-mil polyethylene liner. Bags and liners are polyethylene. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: LLNL assays drums using segmented gamma scan counter or a combination of calorimetry and gamma counting. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Liquids are solidified according to procedure and the solid is allowed to cure before final sealing of the drum. Nevada Test Site waste acceptance criteria prohibits free liquids in excess of 0.5% by volume in TRU waste to be stored at NTS.

EXPLOSIVES COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives or compressed gases. LLNL procedures call for all aerosol cans to be punctured before placement in the TRU waste drum.

PYROPHORICS: LLNL has certified that the waste does not contain any pyrophorics.

CORROSIVES: LLNL has not identified any corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to the shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Mixed Glovebox Waste	Lawrence Livermore National Laboratory

CONTENT CODE: LL 124A

CONTENT DESCRIPTION: TRU Pyrochemical Salt Waste

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: Solid waste pyrochemical salt.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory.

WASTE FORM: The waste consists of used chloride and fluoride salts from pyrochemical processes (electrorefining, molten salt extraction, and direct oxide reduction).

WASTE PACKAGING: The waste solids are placed in a metal container which is then put into a double plastic bag with two horsetails (taped). It is then placed in a 55-gallon drum fitted with a 90-mil polyethylene liner. Bags and liners are polyethylene. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: LLNL assays drums using segmented gamma scan counter or a combination of calorimetry and gamma counting. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: None.

EXPLOSIVES/COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives or compressed gases. LLNL procedures call for all aerosol cans to be punctured before placement in a TRU waste drum.

PYROPHORICS: LLNL has certified that the waste does not contain any pyrophorics.

CORROSIVES: LLNL has not identified any corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to the shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
004	Special Isotope Separation (SIS) Salt Waste	Lawrence Livermore National Laboratory

CONTENT CODE: MD 111A

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Mound Laboratory

WASTE DESCRIPTION: Aqueous effluent from decontamination and decommissioning activities in former Pu-238 processing areas is treated in WD Building. The sludge which contains 20-25% solids is mixed with cement.

GENERATING SOURCE: The waste originates from SM Building, PP Building, and R Building at Mound Laboratory.

WASTE FORM: The sludge is produced through a standard batch type precipitation process. After pH adjustment, CaCl_2 , $\text{Fe}_2(\text{SO}_4)_3$ and carbon are added. The effluent is filtered, sampled and discharged. The resultant sludge is solidified with approximately two bags of cement. Solids are primarily ferric hydroxides.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a 90-mil high density polyethylene liner. There are no other bags or added confinements.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample of the sludge is taken from each batch, and the type and quantity of radionuclides present are determined using standard radiochemical techniques. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: WD sludge is solidified with cement in accordance with documented written procedures. This operation is periodically audited by QA personnel, as described in the QA plan. Cold samples of this waste form have been examined for the presence of free liquid in or on the concrete matrix, and none was found. These test results are on file at Mound.

EXPLOSIVES/COMPRESSED GASES: The sludge waste form has been analyzed and found to contain no explosive items or explosive compounds or material capable of forming explosive mixtures.

Areas where TRU waste is generated typically contain no explosive wastes. Administrative controls are in place which preclude the introduction of explosives into TRU waste packages.

Administrative controls exist which ban the introduction of cylinders of compressed gases into the waste containers. Aerosol cans are punctured before being discarded as waste.

PYROPHORIC: Analytical procedures have been performed on the sludge, and the results included in this document indicate the absence of pyrophorics in the waste stream. In addition, the solidification operation assures that any small quantities of pyrophorics that might be present are rendered safe by dispersion in the concrete matrix.

CORROSIVES: No corrosive materials have been identified in this waste per 40 CFR 261 criteria.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner will be punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is loaded directly into a rigid liner that has a punctured lid. No plastic bags are used. This content code is assigned to shipping categories I.2A0 (drums) and I.2B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2536 for a single drum and 0.1793 for an overpacked drum. (See Table 6-1.)

The maximum wattage per TRUPACT-II is 3.5504 for drums and 1.4344 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
836	Solidified Sludge	Mound Laboratory

CONTENT CODE: MD 111B

CONTENT DESCRIPTION: Contaminated Soil

GENERATING SITE: Mound Laboratory

WASTE DESCRIPTION: The waste is soil contaminated to TRU levels with Pu-238 from pipeline breaks and spills. The contaminated fluids are aqueous solutions with a maximum of trace levels of organics in the fluids (if any is present).

GENERATING SOURCE: The waste originates from the WD hillside, pipeline removal at Mound Laboratory.

WASTE FORM: The waste is typically clayey soil which has been contaminated by a pipeline break or other type of spill. The soil is removed by hand digging or with a backhoe. It may include small rocks, but usually no large boulders.

WASTE PACKAGING: The waste is packaged in Standard Waste Boxes (SWB) which are utilized with no sealed liner when loading contaminated soil.

ASSAY: Several representative samples are removed from the box after loading and are evaluated utilizing Mound-developed instrumental assay. An average value is used for the entire box and used to calculate Pu-239 fissile equivalent and decay heat.

FREE LIQUIDS: A study of water content of a variety of soils likely to be encountered at Mound was performed. The results of this study describe the amount of "Florco" absorbent required to absorb all free liquid created by packing compression. Procedures in Mound manuals document how the absorbent is to be added to the container.

EXPLOSIVES/COMPRESSED GASES: Criterion not applicable. Mound soils do not contain explosives or compressed gases.

PYROPHORIC: Criterion not applicable. Pyrophoric materials and combinations of potentially pyrophoric materials do not exist in Mound soils.

Underground piping that may have leaked originated from buildings that did not contain or dispose of pyrophoric materials in this piping.

CORROSIVES: Contaminated soils at Mound are primarily the result of leaks in process or transfer lines. While the initial spill might possibly have contained materials which could be classified as hazardous wastes, these materials were changed as the liquid evaporated, leaving the plutonium residue behind such that the remaining material has been rendered nonhazardous. If there is any reason to suspect the presence of hazardous wastes in the TRU-contaminated soils, an analysis will be performed to determine if the waste fails any of the four EPA characteristic tests.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: The waste form has a bounding G value based on the water in the contaminated soil (because organic chemicals are only in trace quantities) and is directly loaded in SWBs without any bags as liners. Therefore, this content code is assigned shipping category I.2C0.

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 1.1240 for a single Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.2480 for Standard Waste Boxes. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
842	Contaminated Soil	Mound

CONTENT CODE: MD 116A

CONTENT DESCRIPTION: Combustible waste

GENERATING SITE: Mound Laboratory

WASTE DESCRIPTION: TRU combustible wastes consist of paper, plastics, rags, cardboard, and wood generated from glovebox operations and the decontamination and decommissioning program.

GENERATING SOURCES: The waste originates from the PP Building, R Building and SM Building at Mound Laboratory.

WASTE FORM: The paper is typically Kimwipes. Plastics consist of gloves, shoecovers, bags and bubblesuits. Wood is usually plywood or 2X4. The 90-mil HDPE drum liner is also considered as part of the combustible loading.

WASTE PACKAGING: The waste is packaged in 55-gallon drums with a 90-mil high-density polyethylene liner. Combustible waste is typically double bagged in 8-mil PVC. A 4-mil polyethylene bag is used to line the 90-mil HDPE drum liner. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: After loading, each drum is surveyed using a segmented gamma scan counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Absorbent is placed into the TRU waste containers for absorption of any minor liquid residue that may be present. The only potential source of free liquids in combustibles are damp rags or Kimwipes, and operations with these are controlled to ensure that no free liquids can develop.

Administrative control to preclude presence of free liquids in TRU waste containers is accomplished by compliance with procedures.

EXPLOSIVES/COMPRESSED GASES: Explosives are not normally handled in areas where TRU combustible waste is packaged. Administrative procedures are in place which control the introduction of such materials into TRU waste containers.

PYROPHORIC: Pyrophoric materials are not normally handled in areas where combustible TRU waste is generated. Pyrophoric materials and combinations of potentially pyrophoric materials are not allowed to be mixed with TRU combustible wastes. The radioactive materials present in the waste (PuO_2) are essentially nonpyrophoric.

Administrative control to preclude presence of pyrophoric material from TRU waste containers is accomplished by compliance with Mound procedures.

CORROSIVES: Mound technical manuals document the administrative controls which prohibit the introduction of materials into TRU combustible waste packages which could be considered as RCRA hazardous wastes. In rare cases where RCRA hazardous and TRU wastes are commingled, the quantities will be reported in the data package, and the waste package will be properly marked and labeled. Any corrosive materials are rendered non-corrosive before packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is loaded directly into a rigid liner that has a punctured lid. There is a maximum of three layers of plastic bags within the container. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A3 (drums) and III.1B3 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.028 for a single drum and 0.026 for an overpacked drum. (See Table 6-1.)

The maximum wattage per TRUPACT-II is 0.392 for drums and 0.208 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
827	Combustible Waste	Mound

CONTENT CODE: MD 117A

CONTENT DESCRIPTION: Non-Combustible TRU Waste

GENERATING SITE: Mound Laboratory

WASTE DESCRIPTION: Non-combustible waste consists of glass, metal and masonry.

GENERATING SOURCE: The waste originates from the PP Building, R Building and SM Building at Mound Laboratory.

WASTE FORM: Non-combustible wastes are composed of glass, metal, and masonry, and are generated during routine glovebox operations and during decontamination and decommissioning activities. Glass consists of analytical glassware and occasional reagent bottles. Metal includes tools, laboratory apparatus, gloveboxes, fumehoods, duct work, electrical wire and conduit, piping, pumps, fittings, sheet metal and other miscellaneous metallic objects. Masonry consists of bricks, concrete block, pieces of poured walls or floors, and plaster.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The drum is a 55-gallon drum with a 90-mil high density polyethylene drum liner. Noncombustible waste is typically double bagged in 8-mil PVC. A 4-mil polyethylene bag is used to line the 90-mil HDPE drum liner. All bag closures are by the twist and tape method.

BOX PREPARATION:

Larger metal items are wrapped in polyethylene for contamination control and placed in a Standard Waste Box. The box is equipped with at least two carbon composite filters.

ASSAY: After loading both drums and boxes are assayed by a segmented gamma scan counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: All containers (e.g., tanks, bottles, cans, pumps, etc.) are opened and thoroughly drained of all liquids prior to packaging per procedures documented in Mound technical manuals.

In addition, absorbent materials are placed into the TRU waste container for absorption of any minor liquid residue that may remain.

Administrative control to preclude presence of other free liquids in addition to those mentioned above is accomplished by compliance with Mound procedures.

EXPLOSIVES/COMPRESSED GASES: All containers (e.g., tanks, cylinders, etc.) are vented to remove all compressed and/or explosive gases. Valve and closure mechanisms are removed to prevent repressurization or entrapment of gases.

Areas where TRU waste is generated typically contain no explosive wastes. Administrative controls are in place which preclude the introduction of explosives into TRU waste packages.

Administrative control to preclude presence of explosives and compressed gases from TRU waste containers is accomplished by compliance with procedures.

PYROPHORIC: Pyrophoric materials are typically not handled in areas where Pu-238 waste is generated. Pyrophoric materials and combinations of potentially pyrophoric materials are not allowed to be mixed with TRU non-combustible wastes. The radioactive materials present in the waste (PuO_2) are essentially nonpyrophoric.

Administrative control to preclude presence of pyrophoric material from TRU waste containers is accomplished by compliance with Mound procedures.

CORROSIVES: Administrative controls are exercised to preclude the introduction of materials into TRU non-combustible waste packages which could possibly be classified as hazardous waste per the RCRA definition. Any corrosive materials are rendered non-corrosive before packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code is packaged in a maximum of three layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. At least one layer of plastic is a large drum liner bag. The content code is assigned to shipping categories II.1A3 (drums) and II.1B3 (SWB overpack).

Waste is wrapped in plastic sheeting for placement in a SWB. The plastic sheeting is wrapped around the waste and is not taped or closed off like a bag. Therefore, the shipping category assigned for the waste placed in a SWB is II.1C0.

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0561 for a single drum, 0.052 for an overpacked drum, and 1.0206 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.7854 for drums, 0.416 for overpacked drums and 2.0412 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
824	Non-Combustible TRU Waste	Mound

CONTENT CODE: NT 111A

CONTENT DESCRIPTION: Solidified Aqueous Waste

STORAGE SITE: Nevada Test Site

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: The waste consists of solidified aqueous liquids.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 419 and 332.

WASTE FORM: Portland cement is used to solidify water-based liquids. Only trace amounts of organics are present in the aqueous waste streams. Acids and caustics are neutralized to pH 8-12 before solidification.

WASTE PACKAGING: The waste is placed in 55-gallon drums fitted with a 90-mil polyethylene liner. Liquids are solidified in individual 1-gallon, metal paint can which are then placed in 55-gallon drums.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Depending on point of origin, LLNL assays drums using segmented gamma scan counter or a combination of calorimetry and gamma counting. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: After the solidification agent is added, the waste is allowed to cure for 24 hours. The paint cans are tipped to verify the absence of free liquids prior to installing the lids.

EXPLOSIVES/COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives or compressed gases. Nevada Test Site waste acceptance criteria

prohibit explosives and compressed gases from being packaged in TRU waste to be stored at Nevada Test Site.

PYROPHORICS: LLNL has certified that the waste does not contain any pyrophorics. Nevada Test Site waste acceptance criteria prohibit pyrophorics from being packaged in TRU waste to be stored at NTS.

CORROSIVES: LLNL has not identified any unneutralized corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, the rigid drum liner will be punctured, and a carbon composite filter will be installed in the drum lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is packaged in 1-gallon metal cans that are placed in 55-gallon drums. This content code is assigned to shipping categories I.1A0 (drums) and I.1B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2060 for a single drum and 0.1457 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.8840 for drums and 1.1656 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
292	Solidified Sludges	Lawrence Livermore National Laboratory
002	Solidified Aqueous Waste	Lawrence Livermore National Laboratory

CONTENT CODE: NT 116A

CONTENT DESCRIPTION: TRU Combustible Waste

STORAGE SITE: Nevada Test Site

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: The waste consists of mixed glovebox bagout waste, non-line generated laboratory trash, some contaminated small equipment, and small quantities of solidified liquids and sludges.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 332 and 251.

WASTE FORM: The waste consists mostly of untreated dry solids such as tissues, paper, assorted plastics, glassware, ceramics and metals. Portland cement is used to solidify water-based liquids; Envirostone is used to solidify small amounts of solvents and oil-based liquids. The composition varies considerably, but it is predominately organics (>90% by weight).

WASTE PACKAGING: The waste was usually placed in a double plastic bag with two horsetails (taped); then it is placed in a 55-gallon drum fitted with a 90-mil polyethylene liner. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Depending on point of origin, LLNL assays drums using segmented gamma scan counter or a combination of calorimetry and gamma counting. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Liquids are solidified according to procedure, and are allowed to cure before final sealing of the drum. Nevada Test Site waste acceptance

criteria prohibit free liquids in excess of 0.5% by volume in TRU waste to be stored at NTS.

EXPLOSIVES/COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives or compressed gases. LLNL procedures call for all aerosol cans to be punctured before placement in a TRU waste drum. NTS waste acceptance criteria prohibit explosives and compressed gases from being packaged in TRU waste to be stored at NTS.

PYROPHORICS: LLNL has certified that the waste does not contain any pyrophorics. NTS waste acceptance criteria prohibit pyrophorics from being packaged in TRU waste to be stored at NTS.

CORROSIVES: LLNL has not identified any corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, the rigid drum liner will be punctured, and a carbon composite filter will be installed in the drum lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
993	Mixed Glovebox Bagout Waste	Lawrence Livermore National Laboratory
001	Mixed Glovebox Bagout Waste	Lawrence Livermore National Laboratory

CONTENT CODE: NT 211A

CONTENT DESCRIPTION: Solidified Aqueous Waste

STORAGE SITE: Nevada Test Site

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: The waste consists of solidified aqueous sludges.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 419 and 332.

WASTE FORM: Portland cement is used to solidify water-based liquids. Only trace amounts of organics are present in the aqueous waste streams. Acids and caustics are neutralized to pH 8-12 before solidification.

WASTE PACKAGING: The waste is placed in a 55-gallon drum fitted with a 90-mil polyethylene liner. Liquids are solidified in individual 1-gallon, metal paint can which are then placed in 55-gallon drums.

If drums are overpacked in a SWB, no sealed liner bags are used.

ASSAY: All waste drums were assayed using the mobile nondestructive passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: All waste drums were examined using the mobile nondestructive examination real-time radiography (RTR) system developed by LANL for the presence of liquids. All drums to be shipped to WIPP have been found to contain less than 0.5% free liquids by volume.

EXPLOSIVES/COMPRESSED GASES: LLNL has certified that the waste does not contain any explosives. Nevada Test Site waste acceptance criteria prohibit explosives from being packaged in TRU waste to be stored at NTS. All waste drums were

examined using the mobile nondestructive examination RTR system developed by LANL for the presence of compressed gases. All drums to be shipped to WIPP have been found to contain no compressed gases, including unpunctured aerosol cans.

PYROPHORICS: LLNL has certified that the waste does not contain any pyrophorics. Nevada Test Site waste acceptance criteria prohibit pyrophorics from being packaged in TRU waste to be stored at NTS.

CORROSIVES: LLNL has not identified any unneutralized corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Before shipping, the rigid drum liner will be punctured, and a carbon composite filter will be installed in the drum lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is packaged in 1-gallon metal cans that are placed in 55-gallon drums. This content code is assigned to shipping categories I.1A0 (drums) and I.1B0 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2060 for a single drum and 0.1457 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.8840 for drums and 1.1656 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
292	Solidified Sludges	Lawrence Livermore National Laboratory
002	Solidified Aqueous Waste	Lawrence Livermore National Laboratory

CONTENT CODE: NT 225A

CONTENT DESCRIPTION: TRU Combustible and Noncombustible Waste

STORAGE SITE: Nevada Test Site

GENERATING SITE: Lawrence Livermore National Laboratory

WASTE DESCRIPTION: The waste consists of mixed glovebox bagout waste, nonline-generated laboratory trash, contaminated small equipment, and small quantities of solidified liquids and sludges.

GENERATING SOURCE: The waste originates from Lawrence Livermore National Laboratory Buildings 332 and 251.

WASTE FORM: Mostly untreated dry solids such as tissues, paper, assorted plastics, glassware, ceramics and metals. Portland cement is used to solidify water-based liquids. Envirostone is used to solidify small amounts of solvents and oil-based liquids. Composition varies widely from mostly dry combustibles to mostly noncombustibles.

WASTE PACKAGING: The waste was usually placed in a double plastic bag with two horsetails (taped); it is then placed in a 55-gallon drum fitted with a 90-mil polyethylene liner. All bag closures are by the twist and tape method.

If drums are overpacked in a SWB, no sealed liner bags are used.

ASSAY: All waste drums were assayed using the mobile nondestructive passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: All waste drums were examined using the mobile nondestructive examination real-time radiography (RTR) system developed by LANL for the presence of liquids. All drums to be shipped to WIPP have been found to contain less than 0.5% free liquids by volume.

EXPLOSIVES/COMPRESSED GASES: Lawrence Livermore National Laboratory has certified that the waste does not contain any explosives. Nevada Test Site waste acceptance criteria prohibit explosives from being packaged in TRU waste to be stored at NTS. All waste drums were examined using the mobile nondestructive examination RTR system developed by LANL for the presence of compressed gases. All drums to be shipped to WIPP have been found to contain no compressed gases, including unpunctured aerosol cans.

PYROPHORICS: LLNL has certified that the waste does not contain any explosives. Nevada Test Site waste acceptance criteria prohibit pyrophorics from being packaged in TRU waste to be stored at NTS.

CORROSIVES: LLNL has not identified any corrosive materials in this waste.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

PAYLOAD CONTAINER VENTING AND ASPIRATION: The payload containers in this content code will be aspirated using one of the three options described in Appendix 3.6.11 of the SAR. Aspiration times are shown in Table 7 for Option 1 (aspiration time based on date of drum closure), Table 8 for Option 2 (headspace gas sampling at the time of venting), and Table 9 for Option 3 (headspace gas sampling during aspiration.)

ADDITIONAL CRITERIA: Before shipping, the rigid drum liner will be punctured, and a carbon composite filter will be installed in the drum lid. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code waste is packaged in a maximum of two plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to the shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
330	Dry Combustibles	Lawrence Livermore National Laboratory
961	Contaminated Equipment/Metal	Lawrence Livermore National Laboratory
993	Mixed Glovebox Bagout Waste	Lawrence Livermore National Laboratory
001	Mixed Glovebox Bagout Waste	Lawrence Livermore National Laboratory

CONTENT CODE: OR 125A

CONTENT DESCRIPTION: TRU Mixed Paper, Metal and Glass

GENERATING SITE: Oak Ridge National Laboratory

WASTE DESCRIPTION: The waste consists of general chemical laboratory waste containing such materials as empty reagent bottles, wipes, paper waste, vials, contaminated clothing and gloves, and various laboratory glassware and containers. Some, but not all, waste containers will include small quantities of metal waste in the form of canisters, other containers, or lead shielding. The presence of these materials in individual waste containers will be verified through real-time radiography (RTR). Occasionally, ventilation system filters may also be included in the waste. The presence of filter media is also identified through RTR. As minor constituents in waste containers, TRU isotopic sources or leaded rubber glovebox gloves may be present and also verified through RTR.

GENERATING SOURCE: The waste originates from Buildings 7920, 2026, 5505, and 3019, Analytical Chemistry at the Y-12 plant, and the Isotopes Production Area at ORNL.

WASTE FORM: The waste consists of unconsolidated trash resulting from varied process operations in gloveboxes and hot cells.

WASTE PACKAGING: The waste is placed in 55-gallon drums with a carbon composite filter in the drum head. Waste is bagged out in one or two unsealed plastic bags and then placed in a bag with another layer of plastic bagging. Some waste is packaged in a less than 0.5-gallon metal cans and then placed in plastic 0.5-gallon cans before placement in drums. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Radionuclide assay is performed on the bulk waste container (55-gallon drum). Nuclear criticality (Pu-239 equivalent), Pu-239 equivalent activity (Ci), and thermal power or decay heat (watts/cubic foot) are determined using the passive-active neutron (PAN) assay system. Error bars for each value are provided. Gamma-emitting isotopes (e.g., Am-241, Am-243, Cs-137, etc.) are quantified by segmented gamma scan counter.

FREE LIQUIDS: Laboratory operating procedures require that all containers placed into radioactive waste receptacles be "well drained" which is determined by visual inspection at the individual generator facility and verified by RTR.

EXPLOSIVES/COMPRESSED GASES: No explosives have been identified through analysis of generator waste stream flow charts. A review mechanism for process changes exists to identify the future addition of such materials into the stream. Absence of compressed gases is verified by RTR.

PYROPHORICS: No pyrophorics have been identified through analysis of generator waste stream flow charts. A review mechanism for process changes exists to identify the future addition of such materials into the stream.

CORROSIVES: If analysis of generator process flow chart identifies corrosive material, the material will be neutralized. A review mechanism for process changes exists to identify the future addition of such materials into the stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a

SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: Not applicable.

CONTENT CODE: OR 125B

CONTENT DESCRIPTION: TRU Mixed Paper, Metal and Glass

GENERATING SITE: Oak Ridge National Laboratory

WASTE DESCRIPTION: The waste consists of construction debris resulting from decontamination and decommissioning activities.

GENERATING SOURCE: The waste originates from Buildings 3505, 7920, 2026, 5505, 3019, Analytical Chemistry at the Y-12 plant, and the Isotopes Production Area at ORNL.

WASTE FORM: The waste consists of construction debris, including concrete, duct work, and other materials resulting from decontamination and decommissioning activities such as dismantling hot cells and removing structures.

WASTE PACKAGING: The waste is packaged in a 55-gallon drum with a carbon composite filter in the drum head. Waste is bagged-out in one or two unsealed plastic bags and then placed in a bag with a second layer of plastic bagging. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Radionuclide assay is performed on the bulk waste container (55-gallon drum). Nuclear criticality (Pu-239 equivalent), Pu-239 equivalent activity (Ci), and thermal power or decay heat (watts/cubic foot) are determined using the passive-active neutron (PAN) assay system. Error bars for each value are provided. Gamma-emitting isotopes (e.g., Am-241, Am-243, Cs-137, etc.) are quantified by segmented gamma scan counter.

FREE LIQUIDS: Laboratory operating procedures require that all containers placed into radioactive waste receptacles be "well drained" which is determined by visual inspection at the individual generator facility and verified by real-time radiography (RTR).

EXPLOSIVES/COMPRESSED GASES: No explosives have been identified through analysis of generator waste stream flowcharts. A review mechanism for process changes exists to identify the future addition of such materials into the stream. Absence of compressed gases is verified by RTR.

PYROPHORICS: No pyrophorics have been identified through analysis of generator waste stream flowcharts. A review mechanism for process changes exists to identify the future addition of such materials into the stream.

CORROSIVES: If analysis of generator process flowchart identifies corrosive material, the material will be neutralized. A review mechanism for process changes exists to identify the future addition of such materials into the stream.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: Before shipping, each drum will be fitted with a carbon composite filter, and the rigid liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to shipping categories III.1A2 (drums) and III.1B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum and 0.0387 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums and 0.3096 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: Not applicable.

CONTENT CODE: RF 111A

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous effluent from uranium and plutonium processing activities is treated in Buildings 374 and 774. The resultant sludge is packaged as content code RF 111A. The final waste product is obtained by mixing the wet sludge with approximately 30% portland cement.

GENERATING SOURCES: The waste originates from Buildings 374 and 774 at RFP.

WASTE FORM: Solidified aqueous waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: The cemented sludge is placed in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag, and a 5-mil polyethylene bag. While the polyethylene bag is not required from waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample on the sludge from each drum is taken to determine the amount and identity of the radionuclides (plutonium, americium and uranium) in the sludge. The sludge sample is analyzed using a radiochemical assay. The results of the analysis are expressed in terms of grams of each radionuclide present for each gram of sludge. Also, the cemented sludge may be assayed using a

passive-active neutron (PAN) counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, both layers of plastic are drum liner bags. This content code is assigned to shipping categories I.2A2 (drums) and I.2B2 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum and 0.1486 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums and 1.1888 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Building 374	Rocky Flats Plant
807	Solidified Bypass Sludge Building 374	Rocky Flats Plant

CONTENT CODE: RF 1113

CONTENT DESCRIPTION: Solidified Aqueous Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous effluent from uranium and plutonium processing activities is treated in Buildings 374 and 774. The resultant sludge is packaged as content code RF 1113. The final waste product is obtained by mixing the wet sludge with approximately 30% portland cement. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 374 and 774 at RFP.

WASTE FORM: Solidified aqueous waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: The cemented sludge is placed in a 55-gallon drum which is lined with a HDPE liner, a 14-mil PVC O-ring bag and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. Any waste packaged in an experimental bin overpacked in a SWB will contain a maximum of two large liner bags. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: A sample on the sludge from each drum is taken to determine the amount and identity of the radionuclides (plutonium, americium and uranium) in the sludge. The sludge sample is analyzed using a radiochemical assay. The results

of the analysis are expressed in terms of grams of each radionuclide present for each gram of sludge. Also, the cemented sludge may be assayed using a passive-active neutron (PAN) counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: The waste is produced in a closed system which precludes the introduction of extraneous materials such as pressure vessels or explosives. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories I.2A2 (drums), I.2B2 (SWB overpack), and I.2D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1962 for a single drum, 0.1486 for an overpacked drum and 0.4827 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.7468 for drums, 1.1888 for overpacked drums and 0.9654 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Building 374	Rocky Flats Plant
807	Solidified Bypass Sludge Building 374	Rocky Flats Plant

CONTENT CODE: RF 112A

CONTENT DESCRIPTION: Solidified Organics

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Waste organic liquids are transferred to Building 774 for cementation. The liquids (oil and/or solvents) are mixed with gypsum cement (Envirostone) and are packaged as content code RF 112A.

GENERATING SOURCE: The waste originates from Building 774 at RFP.

WASTE FORM: The organics and gypsum cement are mixed together within a 55-gallon drum prepared as described below. The oil/solvent mixtures may contain machining oil, lathe coolant, carbon tetrachloride, 1,1,1-trichloroethane, and 1,1,2-trichloro-1,2,2-trifluoroethane. The waste laboratory solvents contain chloroform or a mix of chloroform and xylene.

WASTE PACKAGING: The cemented liquid is mixed and cured in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag, and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The laboratory solvents are containerized and assayed prior to shipment to Building 774. The results of the radiochemical assays for bottled waste liquid are totaled and assigned to the appropriate drum. The oil/solvent mixture is transferred to Building 774 via pipeline from waste tanks in other buildings. The contents of each tank are assayed radiochemically to determine the amount of radionuclides in the liquid. The liquids are transferred to Building 774 in batches of less than 200 grams Pu fissile equivalent. The assay results for the batch are equally divided among all of the drums of cemented waste produced from

that batch. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified organic waste is cast into a solid by mixing with gypsum cement with the organic waste in a controlled process per procedure. Waste certification inspection of process parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Since the waste is organic, there is no corresponding pH.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, both layers of plastic are drum liner bags. This content code is assigned to test categories IVA2T (drums) and IVE2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
801	Solidified Organics Building 774	Rocky Flats Plant
808	Solidified Laboratory Organic Waste Building 774	Rocky Flats Plant

CONTENT CODE: RF 113A

CONTENT DESCRIPTION: Solidified Laboratory Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Aqueous laboratory wastes that are not compatible (i.e., strong acids or bases) with the primary aqueous treatment system are neutralized and solidified as content code RF 113A. The final waste form is obtained by mixing portland and magnesia cements with the waste.

GENERATING SOURCE: The waste originates from Building 774 at RFP.

WASTE FORM: The liquid waste is accumulated in bottles and, after chemical and radiochemical assay, is transferred to Building 774. The bottles are segregated into batches of 80-100 liters and less than 200 grams fissile material. The pH of the waste is adjusted to be slightly basic, and then the liquid is added to the premixed (portland and magnesia) cement mixture in the drum.

WASTE PACKAGING: The cemented liquid is placed in a 55-gallon drum which is lined with a HDPE liner, 14-mil PVC O-ring bag, and a 5-mil polyethylene bag. While the polyethylene bag is not required from a waste packaging standpoint, it aids in contamination control. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: As described under waste form, the laboratory waste is assayed radiochemically. The results of the assays are totaled and assigned to the appropriate drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: TRU solidified laboratory waste is cast into a solid by mixing with portland and magnesia cements with the neutralized laboratory waste in a controlled process per procedure. Waste certification inspection of process

parameters ensures that operational controls produce a solid cast. The real-time radiography (RTR) examination ensures that free liquids have not developed after the drum was closed.

EXPLOSIVE /COMPRESSED GASES: No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: The pH of the liquid waste is adjusted to be slightly basic prior to solidification. No corrosives are included in this content code.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, both layers of plastic are drum liner bags. This content code is assigned to test categories IVA2T (drums) and IVB2T (SWB overpack).

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
802	Solidified Laboratory Waste Building 774	Rocky Flats Plant

CONTENT CODE: RF 114A

CONTENT DESCRIPTION: Cemented Inorganic Process Solids

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: All particulate and sludge-type wastes that are generated and containerized during plutonium recovery operations are solidified with portland cement. The resultant waste is designated inorganic cemented process solids. Examples of the wastes are filter sludge, grit and fire brick fines.

GENERATING SOURCES: The waste originates from Building 371 and 771 at RFP.

WASTE FORM: The waste is mixed with a portland cement mixture in a one-gallon mold. The cement mixture used varies by procedure with the type of waste being cemented. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: The solidified pucks are double bagged with plastic (two layers of PVC or one each of PVC and polyethylene) and are then placed in a 55-gallon drum which is lined with a HDPE liner and 14-mil polyethylene bag. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of particulates or sludge is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum. The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories I.3A4 (drums) and I.3B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1359 for a single drum and 0.1272 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.9026 for drums and 1.0176 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
806	Cemented Process Solids	Rocky Flats Plant

CONTENT CODE: RF 114B

CONTENT DESCRIPTION: Cemented Inorganic Process Solids

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: All particulate and sludge-type wastes that are generated and containerized during plutonium recovery operations are solidified with portland cement. The resultant waste is designated inorganic cemented process solids. Examples of the wastes are filter sludge, grit and fire brick fines. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Building 371 and 771 at RFP.

WASTE FORM: The waste is mixed with a portland cement mixture in a one-gallon mold. The cement mixture used varies by procedure with the type of waste being cemented. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of particulates or sludge is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of radionuclides in each drum. For bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories I.3A2 (drums), I.3B2 (SWB overpack), and I.3D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.6375 for a single drum, 0.4828 for an overpacked drum and 1.5689 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 8.9250

for drums, 3.8624 for overpacked drums and 3.1378 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
806	Cemented Process Solids	Rocky Flats Plant

CONTENT CODE: RF 115A

CONTENT DESCRIPTION: Graphite Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of discarded graphite from plutonium casting and laboratory operations.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771 and 776 at RFP.

WASTE FORM: The waste consists of broken graphite molds and graphite furnace equipment or graphite chunks and pieces from mold cleaning and declassification. Discarded laboratory equipment is also included in this content code.

WASTE PACKAGING: The graphite waste is placed directly into a 55-gallon drum or double-bagged (two PVC bags or one PVC and one polyethylene bag) prior to loading. The drum is lined with a HDPE liner and 14-mil O-ring PVC bag. The PVC bag may have a polyethylene bag around it for contamination control purposes. A fiberboard liner is placed between the waste bags and the drum liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed by segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are recorded in grams of the radionuclides present in the drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Graphite waste contains no free liquid. Direct inspection of the waste by real-time radiography (RTR) of the drum contents ensures that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers may not be packaged with this content code. RTR examination of each waste package ensures that pressurized containers are excluded from the waste.

PYROPHORICS: Graphite waste contains no pyrophoric material other than discard levels of radionuclides. Other pyrophorics are prohibited by waste packaging procedures.

CORROSIVES: No corrosive materials are used in conjunction with graphite at Rocky Flats. Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories II.1A4 (drums) and II.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum and 0.0392 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums and 0.3136 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant
303	Scarfed Graphite Chunks	Rocky Flats Plant
312	Graphite, Coarse	Rocky Flats Plant

CONTENT CODE: RF 115B

CONTENT DESCRIPTION: Graphite Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of discarded graphite from plutonium casting and laboratory operations. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771 and 776 at RFP.

WASTE FORM: The waste consists of broken graphite molds and graphite furnace equipment or graphite chunks and pieces from mold cleaning and declassification. Discarded laboratory equipment is also included in this content code.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. A fiberboard liner is placed between the waste bags and the drum liners for puncture protection. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed by segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are recorded in grams of the radionuclides present in the drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Graphite waste contains no free liquid. Direct inspection of the waste by real-time radiography (RTR) of the drum contents ensures that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers may not be packaged with this content code. RTR examination of each waste package ensures that pressurized containers are excluded from the waste.

PYROPHORICS: Graphite waste contains no pyrophoric material other than discard levels of radionuclides. Other pyrophorics are prohibited by waste packaging procedures.

CORROSIVES: No corrosive materials are used in conjunction with graphite at Rocky Flats. Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in two layers of plastic in a 55-gallon drum, drums overpacked in a SWB, in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB) and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a SWB

and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for a SWB and 0.3542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
300	Graphite Molds	Rocky Flats Plant
303	Scarfed Graphite Chunks	Rocky Flats Plant
312	Graphite, Coarse	Rocky Flats Plant

CONTENT CODE: RF 116A

CONTENT DESCRIPTION: Combustible Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills. It may also include other combustible items as mentioned in the waste description section.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is either loaded directly into a drum or removed from the glovebox line contained in a PVC or a PVC and polyethylene bag. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE liner and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

The waste accumulated in drums may be dumped into a Standard Waste Box. Each bag of waste is opened prior to placement in the SWB. The SWB is lined with one 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) drum counter or a non-transmission corrected NaI

drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs, the drum assays are totaled to determine the amount of radionuclides in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB and a maximum of one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag.

This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpack) and III.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum and 0.3515 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.703 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
831	Combustibles, Dry	Rocky Flats Plant
832	Combustibles, Wet	Rocky Flats Plant
833	Plastics	Rocky Flats Plant

CONTENT CODE: RF 116B

CONTENT DESCRIPTION: Combustible Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills. It may also include other combustible items as mentioned in the waste description section.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) drum counter or a non-transmission corrected NaI drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when it is placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C1 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.3515 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.7030 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
831	Combustibles, Dry	Rocky Flats Plant
832	Combustibles, Wet	Rocky Flats Plant
833	Plastics	Rocky Flats Plant

CONTENT CODE: RF 117A

CONTENT DESCRIPTION: Metal Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of non-pyrophoric waste metals (i.e., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum.)

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste form includes items such as gloveboxes, used shielding, tools, crucibles, machinery and empty containers. The items that are difficult to reduce to a size that would fit in a drum are placed in Standard Waste Boxes (SWB).

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is either loaded directly into a drum or removed from the glovebox line contained in two PVC bags or a PVC and a polyethylene bag. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE liner and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. A fiberboard liner is placed between the waste and the drum liner for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

The waste accumulated in drums may be dumped into a SWB. The outer and inner bags are opened prior to placement in the SWB. The SWB is lined with a 14-mil PVC liner. For stripout operations, the metal waste is wrapped in several layers of PVC sheeting and then placed in the SWB. For waste leaving the Advanced Size

Reduction Facility (ASRF), the metal is loaded directly into a SWB with an additional 14-mil PVC liner. A liner (made of metal or wood) is inserted between the waste and the inner PVC liner to support the PVC liner during loading. A fiberboard liner is placed between the waste and the PVC liner for puncture protection. All bag liners are sealed by taping along the folds.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Standard Waste Boxes are assayed using a PAN crate counter. For SWBs that contain waste dumped from drums, the drum assays are totaled to calculate the amount of radionuclides in each waste box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the package is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB and a maximum of two layers of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there are two large waste box liner bags. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpack) and II.1C2 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum and 0.5361 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.0722 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant
321	Lead	Rocky Flats Plant
480	Light Metal	Rocky Flats Plant
488	Glovebox Parts with Lead	Rocky Flats Plant
854	Beryllium	Rocky Flats Plant

CONTENT CODE: RF 117B

CONTENT DESCRIPTION: Metal Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of non-pyrophoric waste metals (i.e., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum.) Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste form includes items such as gloveboxes, used shielding, tools, crucibles, machinery and empty containers. The items that are difficult to reduce to a size that would fit in a drum are placed in Standard Waste Boxes (SWB).

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Standard Waste Boxes are assayed using a PAN crate counter. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the package is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in two layers of plastic when placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are two large waste box liner bags. The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C2 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.5361 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.0722 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
320	Heavy Non-SS Metal	Rocky Flats Plant
321	Lead	Rocky Flats Plant
480	Light Metal	Rocky Flats Plant
488	Glovebox Parts with Lead	Rocky Flats Plant
854	Beryllium	Rocky Flats Plant

CONTENT CODE: RF 118A

CONTENT DESCRIPTION: Glass Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of glass and ceramic waste from recovery, maintenance and laboratory operations.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste form includes items such as Raschig rings (borosilicate glass - neutron poison), ceramic crucibles, glovebox windows, laboratory glassware, process equipment and empty containers.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The glass is either loaded directly into a drum or removed from the glovebox line contained in two PVC or a PVC and a polyethylene bag. In addition, the waste may be collected in a metal can or polyethylene bottle which would then be removed from the line wrapped within the two bags. The bagged waste is then placed into a 55-gallon drum which is lined with a HDPE and a 14-mil PVC O-ring bag or a 14-mil polyethylene round bottom liner or both. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

The waste accumulated in drums may be dumped into a Standard Waste Box. Each bag of waste is opened prior to placement in the SWB. The SWB has a fiberboard liner placed between the waste and the container liner for puncture protection.

The SWB is lined with one 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs, the drum assays are totaled to determine the amount of radionuclides present in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the glass waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB and one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpacks) and II.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum and 0.7029 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.4058 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
368	Magnesium Oxide Crucibles	Rocky Flats Plant
370	Leco Crucibles	Rocky Flats Plant
440	Glass	Rocky Flats Plant
442	Leached Raschig Rings	Rocky Flats Plant
443	Leached Raschig Rings (Solvent Residue)	Rocky Flats Plant
444	Ground/Leaded Glass	Rocky Flats Plant

CONTENT CODE: RF 1138

CONTENT DESCRIPTION: Glass Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of glass and ceramic waste from recovery, maintenance and laboratory operations. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste form includes items such as Raschig rings (borosilicate glass - neutron poison), ceramic crucibles, glovebox windows, laboratory glassware, process equipment and empty containers.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (i.e.,

Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the drum is closed. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the glass waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpacks), II.1C1 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.7029 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.4058 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
368	Magnesium Oxide Crucibles	Rocky Flats Plant
370	Leco Crucibles	Rocky Flats Plant
440	Glass	Rocky Flats Plant
442	Leached Raschig Rings	Rocky Flats Plant
443	Leached Raschig Rings (Solvent Residue)	Rocky Flats Plant
444	Ground/Loaded Glass	Rocky Flats Plant

CONTENT CODE: RF 119A

CONTENT DESCRIPTION: Filter Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Filter waste includes absolute dry box filters, HEPA filters, filter media (separated from the filter frame) and Ful-Flo (for liquids) filters.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: HEPA filters and drybox filters are of various sizes. The frames are made of wood or metal, and the media are composed of a fiberglass-type or Nomex-type material. Ful-Flo filter cartridges consist of polypropylene plastic. Some types of filter waste are processed by the addition of portland cement to the waste, according to Waste Operations procedures.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The filters or filter media are double bagged (two PVC bags or one each PVC and polyethylene bags) and removed from the glovebox line or filter plenum. In addition, the filter media may be collected within a polyethylene bottle (<1 gallon). The filter waste is then placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil thick polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liner as puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

HEPA filters may be placed within SWBs also. The SWBs have a fiberboard liner placed between the waste and the container liners as puncture protection. The SWBs are lined with a 14-mil PVC liner. All bag liners are sealed by taping along the folds.

ASSAY: The drums may be assayed on a segmented gamma scan counter, a non-transmission corrected NaI drum counter or a passive-active neutron (PAN) drum counter. Standard Waste Boxes are assayed using a PAN crate counter. The results are expressed as grams of radionuclides per individual container. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Filters and filter media are dried, drained or otherwise segregated from liquids and, in addition, absorbents (i.e., Oil-Dri) are added to the bottom of Standard Waste Boxes to absorb any liquids that may desorb after the box is closed.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. Real-time radiography (RTR) examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: All corrosive materials are neutralized or removed from this waste as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB and a maximum of three layers of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpacks) and III.1C3 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum and 0.0611 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.1222 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant
342	Absolute Dry Box Filters (acid residues)	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant

CONTENT CODE: RF 119B

CONTENT DESCRIPTION: Filter Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: Filter waste includes absolute dry box filters, HEPA filters, filter media (separated from the filter frame) and Ful-Flo (for liquids) filters. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: HEPA filters and drybox filters are of various sizes. The frames are made of wood or metal, and the media are composed of a fiberglass-type or Nomex-type material. Ful-Flo filter cartridges consist of polypropylene plastic. Some types of filter waste are processed by the addition of portland cement to the waste, according to Waste Operations procedures.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter, a non-transmission corrected NaI drum counter or a passive-active neutron (PAN) drum counter. Standard Waste Boxes or bins overpacked in a SWB are assayed using a PAN crate counter. The results are expressed as grams of radionuclides per individual container. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Filters and filter media are dried, drained or otherwise segregated from liquids and, in addition, absorbents (i.e., Oil-Dri) are added to the bottom of Standard Waste Boxes to absorb any liquids that may desorb after the box is closed.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. Real-time radiography (RTR) examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: All corrosive materials are neutralized or removed from this waste as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB or bin, there are two large waste box liner bags. The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C2 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.2680 for a Standard

Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.3360 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant
342	Absolute Dry Box Filters (acid residues)	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant

CONTENT CODE: RF 121A

CONTENT DESCRIPTION: Organic Solid Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of organic solid waste that is non-combustible. Benelex and Plexiglas neutron shielding, blacktop, concrete, dirt and sand are included in this content code.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists of Benelex and Plexiglas neutron shielding in slabs that are 2- or 4-inches thick. This content code also encompasses blacktop, concrete, dirt and sand.

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste (IDC 374) is removed from the glovebox contained in up to two layers of plastic (two PVC bags or one each PVC and polyethylene). The bagged waste is then placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

The slabs (IDC 302) may be wrapped with several layers of PVC sheeting and then placed in a SWB. The SWB is lined with one 14-mil PVC liner. A fiberboard liner is placed between the waste and the box liner for puncture protection. The bag liner is sealed by taping along the folds.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. The box is assayed by a passive-active neutron (PAN) crate counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed package is performed as a second verification that no free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum (IDC 374) or drums overpacked in a SWB and one layer of plastic in the SWB (IDC 302). In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories III.1A4 (drums), III.1B4 (SWB overpack) and III.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum, 0.0196 for an overpacked drum and 0.3515 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums, 0.1568 for overpacked drums and 0.7030 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant

CONTENT CODE: RF 1213

CONTENT DESCRIPTION: Organic Solid Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of organic solid waste that is non-combustible. Benelex and Plexiglas neutron shielding, blacktop, concrete, dirt and sand are included in this content code. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists of Benelex and Plexiglas neutron shielding in slabs that are 2- or 4-inches thick. This content code also encompasses blacktop, concrete, dirt and sand.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The content code may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. The results are expressed as grams of radionuclides per individual drum. The SWB or bins overpacked in a SWB are assayed by a passive-active neutron (PAN) crate counter. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed package is performed as a second verification that no free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly in a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), III.1C1 (SWB), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum, 0.3515 for a Standard Waste Box and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum

wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums, 0.7030 for Standard Waste Boxes and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglas	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant

CONTENT CODE: RF 122A

CONTENT DESCRIPTION: Solid Inorganic Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This content code consists of firebrick, clay absorbent and insulation.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The majority of the waste in this content code is waste generated during maintenance/stripout activities (i.e., replacement of firebrick refractory or insulation). The content code also encompasses insulation, fire blankets and Oil-Dri (clay absorbent).

WASTE PACKAGING: The waste is placed in both 55-gallon drums and Standard Waste Boxes (SWB).

DRUM PREPARATION:

The waste is removed from the glovebox contained in up to two layers of plastic (two PVC bags or one each PVC and polyethylene). The bagged waste is then placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. The drums have a fiberboard liner placed between the waste and the container liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

BOX PREPARATION:

The SWB is lined with a 14-mil PVC liner. The SWBs have a fiberboard liner placed between the waste and the container liner for puncture protection. The bag liner is sealed by taping along the folds.

ASSAY: The waste drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. For SWBs, the drum assays are totaled to determine the amount of radionuclides in each box. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed waste package is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB and one layer of plastic in the SWB. In a drum, at least one layer of plastic is a drum liner bag; in a SWB, there is a large waste box liner bag. This content code is assigned to shipping categories II.1A4 (drums), II.1B4 (SWB overpack) and II.1C1 (SWB).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum, 0.0392 for an overpacked drum and 0.7029 for a Standard Waste Box. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums, 0.3136 for overpacked drums and 1.4058 for Standard Waste Boxes. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
371	Firebrick	Rocky Flats Plant
375	Oil-Dri	Rocky Flats Plant
377	Firebrick, Coarse	Rocky Flats Plant
379	Firebrick, Scarfed	Rocky Flats Plant
438	Insulation (Including Fire Blankets)	Rocky Flats Plant

CONTENT CODE: RF 122B

CONTENT DESCRIPTION: Solid Inorganic Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: This content code consists of firebrick, clay absorbent and insulation. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The majority of the waste in this content code is waste generated during maintenance/stripout activities (i.e., replacement of firebrick refractory or insulation). The content code also encompasses insulation, fire blankets and Oil-Dri (clay absorbent).

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums, SWBs or experimental bins. The waste is packaged in a maximum of two large liner bags for drums and bins and one large liner bag for SWBs. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The waste drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) drum counter. For SWBs and bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. Real-time radiography (RTR) examination of the sealed waste package

is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by packaging procedures. RTR examination of all waste packages provides verification that no pressurized containers are present.

PYROPHORIC: No pyrophorics have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Corrosives are prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. The waste is packaged in one layer of plastic when placed directly into a SWB. In a drum, both layers of plastic are drum liner bags; in a SWB, there is a large waste box liner bag. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories II.1A2 (drums), II.1B2 (SWB overpack), II.1C1 (SWB), and II.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0869 for a single drum, 0.0774 for an overpacked drum, 0.7029 for a Standard Waste Box and 0.4271 for an overpacked bin. (See Table 6-1.) The maximum

Wattage per TRUFAC-II is 1.2166 for drums, 0.6192 for overpacked drums, 1.4033 for Standard Waste Boxes and 0.8542 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
371	Firebrick	Rocky Flats Plant
375	Oil-Dri	Rocky Flats Plant
377	Firebrick, Coarse	Rocky Flats Plant
379	Firebrick, Scarfed	Rocky Flats Plant
438	Insulation (Including Fire Blankets)	Rocky Flats Plant

CONTENT CODE: RF 123A

CONTENT DESCRIPTION: Leaded Rubber

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of leaded gloves and aprons.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists of discarded leaded gloves and aprons comprised of layers of Hypalon rubber and lead-oxide-impregnated neoprene. Leaded rubber that has been exposed to nitric acid is washed to remove any lead nitrate that may have formed.

WASTE PACKAGING: The waste is removed from the glovebox line wrapped in two bags (two PVC bags or one PVC and one polyethylene bag) and placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The results are expressed as grams of radionuclides per individual drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Leaded rubber is dried, drained or otherwise segregated from free liquids as required by waste packaging procedures. In addition, sufficient absorbent is added directly to the waste to immobilize any liquid that may be present. Real-time radiography (RTR) examination of the sealed drum is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedures. RTR examination of the drums provides verification that no pressurized containers are present in the waste.

PYROPHORIC: The washing of the leaded rubber that was exposed to nitric acid removes any lead nitrate that may have formed. No other pyrophorics have been identified. Pyrophorics are prohibited by waste packaging procedure.

CORROSIVE: All corrosive materials are neutralized or removed from the waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.LA4 (drums) and III.LB4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
339	Loaded Gloves and Aprons	Rocky Flats Plant

CONTENT CODE: RF 123B

CONTENT DESCRIPTION: Loaded Rubber

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of loaded gloves and aprons. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The waste consists of discarded loaded gloves and aprons comprised of layers of Hypalon rubber and lead-oxide-impregnated neoprene. Loaded rubber that has been exposed to nitric acid is washed to remove any lead nitrate that may have formed.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The drums may be assayed on a segmented gamma scan counter or a passive-active neutron (PAN) counter. The assays of the individual containers are totaled to determine the amount of the radionuclides in each drum. For bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUFAC-II Safety Analysis Report (SAR). The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Leaded rubber is dried, drained or otherwise segregated from free liquids as required by waste packaging procedures. In addition, sufficient absorbent is added directly to the waste to immobilize any liquid that may be present. Real-time radiography (RTR) examination of the sealed drum is performed as a conclusive verification that no unacceptable free liquids are present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedures. RTR examination of the drums provides verification that no pressurized containers are present in the waste.

PYROPHORIC: The washing of the leaded rubber that was exposed to nitric acid removes any lead nitrate that may have formed. No other pyrophorics have been identified. Pyrophorics are prohibited by waste packaging procedure.

CORROSIVE: All corrosive materials are neutralized or removed from the waste prior to packaging.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the liner has a minimum 0.3-inch diameter hole in the lid. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076 for drums, 0.3096 for overpacked drums and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
339	Leaded Gloves and Aprons	Rocky Flats Plant

CONTENT CODE: RF 124A

CONTENT DESCRIPTION: Pyrochemical Salt Waste

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of spent chloride salt from molten salt extraction, electrowinning or direct oxide reduction.

GENERATING SOURCES: The waste originates from Building 371, 776 and 779 at RFP.

WASTE FORM: The salt is composed of various combinations of cesium, calcium, magnesium, potassium and sodium chloride salts from pyrochemical operations.

WASTE PACKAGING: The salt is placed in a produce can, then bagged and placed in a larger can. The larger can is then double bagged (two PVC bags or one PVC and one polyethylene bag) and removed from the glovebox line. The waste is placed in a 55-gallon drum which is lined with a HDPE liner and up to two 14-mil polyethylene round bottom liners. A fiberboard liner is placed between the waste and the drum liners for puncture protection. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: The individual cans of salt are assayed in-line using a segmented gamma scan counter. The can assays are totaled to determine the amount of radionuclides present in a drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The salts are packaged in a dry environment. Real-time radiography (RTR) examination verifies that no free liquid is present in the waste package.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at Rocky Flats. Pressurized containers are prohibited by waste packaging procedure. The absence

of pressurized containers is verified by periodic waste certification inspection of the waste packaging.

PYROPHORIC: No pyrophorics have been identified in this waste. Direct oxide reduction salt will be air sparged to oxidize any free calcium metal prior to packaging. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosives have been identified in this waste. Corrosives are neutralized or removed from transuranic waste prior to packaging as required by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has been packaged with a metal can as the innermost layer of confinement in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to shipping categories II.2AM (drums) and II.2BM (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 40.0 for a single drum and 40.0 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 40.0 for drums and 40.0 for overpacked drums. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
411	Electrorefining Salt	Rocky Flats Plant
429	Molten Salt	Rocky Flats Plant
433	Scrub Alloy Spent Dicesium Salt	Rocky Flats Plant
454	Direct Oxide Reduction Salt	Rocky Flats Plant

CONTENT CODE: RF 126A

CONTENT DESCRIPTION: Solidified Organic Process Solids

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium. The washed resin is mixed with portland cement and water to form a solid mass. The treatment process which produces this content code is identical to RF 114A.

GENERATING SOURCES: The waste originates from Building 371 and 771 at RFP.

WASTE FORM: The resin is mixed with portland cement in a 1-gallon mold. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: The solidified pucks are double bagged with plastic (two layers of PVC or one each PVC and polyethylene) and are then placed in a 55-gallon drum which is lined with a HDPE liner and 14-mil polyethylene bag. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of resin is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of the radionuclides in each drum. The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are also prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
809	Cemented Resin	Rocky Flats Plant

CONTENT CODE: RF 126B

CONTENT DESCRIPTION: Solidified Organic Process Solids

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium. The washed resin is mixed with portland cement and water to form a solid mass. The treatment process which produces this content code is identical to RF 114A. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Building 371 and 771 at RFP.

WASTE FORM: The resin is mixed with portland cement in a 1-gallon mold. The "pucks" are allowed to cure and are then placed in a 55-gallon drum.

WASTE PACKAGING: All inner bags of containment immediately around the waste are punctured or breached prior to closure of the large liner bags in drums or experimental bins. The waste is packaged in a maximum of two large liner bags in a payload container. All bag closures are by the twist and tape or fold and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: Prior to cementation, each bottle of resin is assayed with a segmented gamma scan counter. The assays of the individual containers are totaled to determine the amount of the radionuclides in each drum. For bins, the drum assays are summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR). The results are displayed in grams of radionuclides per drum. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUID: The cemented waste is inspected prior to packaging to ensure that no free liquids are present. The absence of free liquids is verified by real-time radiography (RTR) examination.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at RFP. Explosives and compressed gases are prohibited by waste packaging procedures. The RTR examination ensures no pressurized containers are present.

PYROPHORIC: Pyrophorics would be rendered innocuous by the solidified cement matrix. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: No corrosive materials have been identified in this waste. Corrosive materials are also prohibited by waste packaging procedures.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The drum lid contains a carbon composite filter, and the rigid liner is punctured, if present. Each SWB is fitted with at least two and up to four carbon composite filters. Each bin is fitted with at least two carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic in a 55-gallon drum, drums overpacked in a SWB or an experimental bin overpacked in a SWB. In a drum, both layers of plastic are drum liner bags; in a bin, there are only large waste box liner bags. The two layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping categories III.1A2 (drums), III.1B2 (SWB overpack), and III.1D2 (experimental bin).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0434 for a single drum, 0.0387 for an overpacked drum and 0.2135 for an overpacked bin. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.6076.

for drums, 0.3096 for overpacked drums and 0.4270 for an overpacked bin. (See Table 6-2.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
809	Cemented Resin	Rocky Flats Plant

CONTENT CODE: RF 127A

CONTENT DESCRIPTION: Combined Solid Organics and Solidified Inorganics

GENERATING SITE: Rocky Flats Plant

WASTE DESCRIPTION: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. In addition, there are small quantities of metals (e.g., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum) and glass and ceramic waste from recovery, maintenance and laboratory operations. The aqueous effluent from uranium and plutonium processing activities is treated and mixed with approximately 30% portland cement. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

GENERATING SOURCES: The waste originates from Buildings 371, 374, 559, 707, 771, 774, 776, 777 and 779 at RFP.

WASTE FORM: The combustible waste consists mainly of cloth and paper products from cleanup of gloveboxes and spills.

The solidified inorganic waste is produced by vacuum filtration of precipitated solids from pretreated aqueous waste slurry. The filter medium is an inert diatomaceous earth medium that accumulates on a rotating drum. Solids are trapped on the surface of the filter medium as the pretreated solution passes through. The surface of the filter medium with entrapped solids is skimmed off as wet sludge. The precipitated solids are chiefly hydroxides with a pH of 10-12.

WASTE PACKAGING: All plastic bags will be punctured prior to placement in a bin which has been specially outfitted with test apparatus. The bin will contain a maximum of two layers of liner bags equivalent in size to the liner bags used in a Standard Waste Box (SWB). The bin will then be placed in a SWB. All bag closures are by the twist and tape or fold and tape method.

ASSAY: The content code may be assayed on a segmented gamma scan counter, a passive-active neutron (PAN) counter or a non-transmission corrected NaI drum counter. The sludge waste is analyzed using a radiochemical assay. Each major type of waste (i.e., solid organics and solidified aqueous inorganics) will be assayed in drums separately prior to being mixed. The results of the analysis are expressed in terms of grams of radionuclides per individual drum or grams of radionuclides present for each gram of sludge. Assay results are used to calculate Pu-239 fissile gram equivalent (plus error) and decay heat (plus error). The assay and PU-239 fissile gram equivalent results (including errors) for each drum placed in a bin will be summed in accordance with procedures outlined in Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report (SAR).

FREE LIQUID: Liquids are prohibited by procedure from being placed in the waste package. The waste packaging procedure also instructs that absorbents (e.g., Oil-Dri) be packed with moist or damp waste to absorb any liquids that may desorb after the waste package is closed.

The TRU solidified aqueous waste is cast into a solid by adding portland cement, diatomite and sludge in a controlled process per procedure. The aqueous sludge is initially two-thirds water and is processed into a solid with no free liquids. Waste certification inspection of process parameters ensures that operational controls produce a solid cast.

A real-time radiography (RTR) examination is performed to ensure that free liquids have not developed after the waste package was closed.

EXPLOSIVE/COMPRESSED GASES: Pressurized containers are vented prior to placement in a waste package. RTR examination of all waste packages provides verification that the containers are vented. No explosives, explosive mixtures or compressed gases have been identified in this waste. Explosives are prohibited at Rocky Flats.

PYROPHORIC: No pyrophoric materials have been identified in this content code. Pyrophorics are prohibited by waste packaging procedures.

CORROSIVE: Packaging procedures require that all corrosive materials must be neutralized or removed from the metal waste prior to packaging. No corrosive materials have been identified in this waste. Precipitated sludges are chiefly hydroxides with a pH of 10-12. Using the criteria for corrosivity in 40 CFR 261, this sludge would not be a corrosive.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The bin lid contains at least two carbon composite filters and the SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged with a maximum of two layers of plastic in a bin which is then overpacked in a Standard Waste Box. The layers of plastic in the bin are equivalent to SWB liners. This content code is assigned to shipping category III.1D2.

MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.2135 for a single bin overpacked in a SWB. The maximum wattage per TRUPACT-II is 0.4270 for bins overpacked in SWBs.

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
302	Benelex and Plexiglass	Rocky Flats Plant
335	Absolute Dry Box Filters	Rocky Flats Plant
338	Filter Media	Rocky Flats Plant
339	Leaded Gloves and Aprons	Rocky Flats Plant
342	Absolute Dry Box Filters (acid residues)	Rocky Flats Plant
374	Blacktop/Concrete/Dirt/Sand	Rocky Flats Plant
376	Processed Filter Media	Rocky Flats Plant

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
490	HEPA Filters	Rocky Flats Plant
491	Plenum Prefilters	Rocky Flats Plant
800	Solidified Sludge Building 774	Rocky Flats Plant
803	Solidified Sludge (DCP) Bldg 374	Rocky Flats Plant
807	Solidified Bypass Sludge Bldg 374	Rocky Flats Plant
831	Combustibles, Dry	Rocky Flats Plant
832	Combustibles, Wet	Rocky Flats Plant
833	Plastics	Rocky Flats Plant
860	WIPP Experimental Waste	Rocky Flats Plant

CONTENT CODE: RH 112A

CONTENT DESCRIPTION: Solidified Organics

GENERATING SITE: Richland Hanford

WASTE DESCRIPTION: The waste consists of absorbed organics from plutonium processing, recovery processing and analytical/chemical technology laboratories.

GENERATING SOURCES: The Plutonium Finishing Plant (PFP) generates liquid organics from operations in the Plutonium Reclamation Facility, Plutonium Conversion - Remote Mechanical C Line, and Analytical/Chemical Laboratories.

WASTE FORM: The PFP generates sludges and liquid organics that cannot be readily absorbed back into the process system. These liquid organics are in an unusable form. The material may contain any or all of the following in a compatible configuration: carbon tetrachloride, tributyl phosphate, xylene, iron, nickel, chromium, normal paraffin hydrocarbons, trimethylbenzene, and tri-octal phosphine oxide. This organic liquid mixture is processed via approved procedures before being discarded as waste.

WASTE PACKAGING: The liquid organics are absorbed in an inert material sufficient to absorb twice the amount of liquid. The absorbed organic is placed into a 1-gallon plastic jar. Each 1-gallon jar is double bagged in plastic.

The drums used for the absorbed organics are 55-gallon drums with a rigid 90-mil polyethylene liner. A maximum of sixteen 1-gallon plastic jars is placed in the drum. Absorbent material is added to the plastic liner surrounding the 1-gallon jars. All bag closures are by the twist and tape method.

ASSAY: An assay of all waste drums is performed by the generator using a NaI and/or a segmented gamma scan counter. An independent passive-active neutron (PAN) assay is performed on all of the waste drums certified at Hanford. A chemical analysis is performed to verify the amount of plutonium in the organic mixture. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The liquid organics are packaged in such a manner that free liquids do not present a problem. All CH-TRU waste drums generated at PFP are examined on a real-time radiography (RTR) unit. This verifies that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at PFP. The only compressed gas container at PFP that has a potential for entering the waste is an aerosol can. These containers are not allowed in gloveboxes. Aerosol cans are segregated and placed in containers that will not be shipped to WIPP.

PYROPHORIC: Pyrophoric materials do not have a potential for being placed into the waste.

CORROSIVE: Corrosives are excluded from this content code by process controls.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The 100% overview with an assay and real-time radiography assures that the waste and packaging meet the required acceptance criteria. In special cases of high density material, the real-time radiography can be waived provided an independent visual inspection of the waste is performed prior to the final closure of the container. Each drum is vented with a carbon composite filter, and the rigid drum liner will be punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. The drums are weighed individually and documented. This insures compliance to weight limits. The TRU waste at PFP is generated in areas where fission products have been eliminated through a chemical process. Thus, calculations are based on Pu-238, Pu-239, Pu-240, Pu-241, Pu-242 and Am-241.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of two layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. This content code is assigned to test categories IVA2T or IVB2T.

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 7 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
004	Solidified Organics	Richland Hanford

CONTENT CODE: RH 114A

CONTENT DESCRIPTION: Solidified Inorganic Process Solids

GENERATING SITE: Richland Hanford

WASTE DESCRIPTION: The waste consists of sludges from plutonium processing, recovery processing and analytical/chemical technology laboratories.

GENERATING SOURCES: The Plutonium Finishing Plant (PFP) generates sludges from operations in the Plutonium Reclamation Facility, Plutonium Conversion - Remote Mechanical C Line, and Analytical/Chemical Laboratories.

WASTE FORM: The PFP generates sludges that can not be readily absorbed back into the process system. These sludges are scraped out of hoods or trays in an unusable form. The material may contain any or all of the following in a compatible configuration: plutonium oxide, plutonium oxalate, nitric acid, and traces of metal ions (e.g., iron, nickel and chromium). This mud-like material is processed via approved procedures before being discarded as waste.

WASTE PACKAGING: The PFP neutralizes the sludge with portland cement. The sludge is mixed with cement in 0.5-liter plastic jars. The mixture is allowed to solidify before it is placed into the waste drum.

The waste drums for the sludges are galvanized 55-gallon drums lined with a polyethylene plastic liner (minimum 4-mil). Approximately three liters of diatomaceous earth are added to the bottom of the drum. The waste is bagged out into a standard bagout bag and then placed in a plastic protective bag before it is placed in the drum. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: An assay of all waste drums is performed by the generator using a NaI and/or a segmented gamma scan counter. An independent passive-active neutron (PAN) assay is performed on all of the waste drums certified at Hanford. Assay

results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: The sludges are packaged in such a manner that free liquids do not present a problem. All CH-TRU waste drums generated at the PFP are examined on a real-time radiography (RTR) unit. This verifies that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at the PFP. The only compressed gas container at the PFP that has a potential for entering the waste is an aerosol can. These containers are not allowed in gloveboxes. Aerosol cans are segregated and placed in containers that will not be shipped to WIPP.

PYROPHORIC: Rags containing nitric acid, plutonium metal and analytical laboratory reagents are potentially pyrophoric. Acid-soaked rags are rinsed in a solution of sodium hydroxide. The rags are allowed to dry before being placed into the waste. Plutonium metal at the facility is controlled by criticality limits. The limit of metal allowed in plant waste is less than 0.05% by weight. This precludes the possibility of significant amounts of metal being placed into the waste. Laboratory materials that are pyrophoric are limited in the quantity allowed in the facility. These materials are used in non-radioactive areas and are discarded as non-radioactive waste.

CORROSIVE: The only corrosive material in the waste is potassium hydroxide from an occasional flashlight battery.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The 100% overview with an assay and real-time radiography assures that the waste and packaging meet the required acceptance criteria. In special cases of high density material, the real-time radiography can be waived provided an independent visual inspection of the waste is performed prior to the final closure of the container. Each drum is vented with a carbon composite

filter, and the rigid drum liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. The drums are weighed individually and documented. This ensures compliance to weight limits. The TRU waste at the PFP is generated in areas where fission products have been eliminated through a chemical process. Thus, calculations are based on Pu-238, Pu-239, Pu-240, Pu-241, Pu-242 and Am-241.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of three layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories I.3A3 (drums) and I.3B3 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.1863 for a single drum and 0.1703 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 2.6082 for drums and 1.3624 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 10 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
003	Solidified Process Solids	Richland Hanford

CONTENT CODE: RH 123A

CONTENT DESCRIPTION: TRU Leaded Rubber

GENERATING SITE: Richland Hanford

WASTE DESCRIPTION: The waste consists of support equipment, support supplies, and failed equipment containing lead used for glovebox operations.

GENERATING SOURCES: The Plutonium Finishing Plant (PFP) generates waste from operations in the Plutonium Reclamation Facility, Plutonium Conversion - Remote Mechanical C Line, and Product Handling. Plutonium-Uranium Extraction facility (PUREX) generates waste from the plutonium conversion operations and process solution sampling operations.

WASTE FORM: The waste consists of one or more of the following: leaded glass, lead lined hood gloves, lead blankets and miscellaneous equipment containing lead.

WASTE PACKAGING: Waste is packaged in at least two layers of plastic for contamination control. Items that have sharp edges or pointed appendages are padded to maintain package integrity. Heavy items may be packaged in one additional layer of plastic or a thicker plastic bag. Heavy items are blocked to prevent shifting in the drum during transportation or handling.

The waste drums are galvanized 55-gallon drums lined with a polyethylene plastic liner (minimum 4-mil). Approximately three liters of diatomaceous earth is added to the bottom of the drum and/or diatomaceous earth is added to each individual package of waste that has a potential of containing liquids. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: An assay of all waste drums is performed by the generator using a NaI and/or a segmented gamma scan counter. An independent passive-active neutron

(PAN) assay is performed on all of the waste drums certified at Hanford. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Diatomaceous earth is placed in the bottom of the waste drum and/or in each waste package where the potential of free liquids exists. Any item that may contain free liquid is drained. All CH-TRU waste drums generated at the PFP and PUREX are examined on a real-time radiography (RTR) unit. This verifies that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at the PFP and the PUREX Plant. The only compressed gas container at the plants that has a potential for entering the waste is an aerosol can. These containers are not allowed in gloveboxes. Aerosol cans are segregated and placed in containers that will not be shipped to WIPP.

PYROPHORIC: The potential for pyrophorics in this waste package does not exist.

CORROSIVE: Based on process knowledge, no corrosives are in this content code.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The 100% overview with an assay and the RTR assures that the waste and packaging meet the required acceptance criteria. In special cases of high density material, the real-time radiography can be waived provided an independent visual inspection of the waste is performed prior to the final closure of the container. Each drum is vented with a carbon composite filter, and the rigid drum liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. The drums are weighed individually and documented. This ensures compliance to weight limits. The TRU waste at the PFP and PUREX is generated in areas where fission products have been eliminated through a chemical process. Thus, calculations are based on Pu-238, Pu-239, Pu-240, Pu-241, Pu-242 and Am-241.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: None assigned.

CONTENT CODE: RH 125A

CONTENT DESCRIPTION: TRU Mixed Paper, Metal and Glass

GENERATING SITE: Richland Hanford

WASTE DESCRIPTION: The waste consists of support equipment, support supplies and failed equipment used for glovebox operations.

GENERATING SOURCES: The Plutonium Finishing Plant (PFP) generates waste from operations in the Plutonium Reclamation Facility, Plutonium Conversion - Remote Mechanical C Line, Product Handling, Decontamination and Decommissioning, and Analytical/Chemical Laboratories. Plutonium-Uranium Extraction (PUREX) generates waste from the plutonium conversion operations, process solution sampling operations, laboratory analysis operations, plant ventilation operations and facility modification operations.

WASTE FORM: The waste consists of any or all of the following items: surgical gloves, plastic bags and sheets, paper products, cloth, tape, rubber, leather, wood, glass, failed process equipment (made of stainless steel, carbon steel, teflon, various gasket materials, etc.), leaded glass, lead-lined hood gloves, lead blankets, fluorescent lamps, flashlight batteries, piping, conduit, wiring, glass and metal portions of gloveboxes, pumps, motors, standard laboratory equipment (beakers, sample vials, flasks, etc.), and high-efficiency particulate air (HEPA) filters.

WASTE PACKAGING: Waste is packaged in at least two layers of plastic for contamination control. Items that have sharp edges or pointed appendages are padded in order to maintain package integrity. Heavy items may be packaged in one additional layer of plastic or a thicker plastic bag. Heavy items are blocked to prevent shifting in the drum during transportation or handling. The waste drums are galvanized 55-gallon drums lined with a polyethylene plastic liner (minimum 4-mils). Approximately three liters of diatomaceous earth is added to the bottom of the drum and/or diatomaceous earth is added to each individual package of waste that has a potential of containing liquids. All bag closures are by the twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: An assay of all waste drums is performed by the generator using a NaI and/or a segmented gamma scan counter. An independent passive-active neutron (PAN) assay is performed on all of the waste drums certified at Hanford. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Diatomaceous earth is placed in the bottom of the waste drum and/or in each waste package where the potential of free liquids exists. Any item (i.e., a pump) that may contain free liquid is drained. All CH-TRU waste drums generated at the PFP and PUREX are examined on a real-time radiography (RTR) unit. This verifies that free liquids are not present.

EXPLOSIVE/COMPRESSED GASES: Explosives are prohibited at the PFP and the PUREX Plant. The only compressed gas container at the plants that has a potential for entering the waste is an aerosol can. These containers are not allowed in gloveboxes. Aerosol cans are segregated and placed in containers that will not be shipped to WIPP.

PYROPHORIC: Rags containing nitric acid, plutonium metal and analytical laboratory reagents are potentially pyrophoric. Acid-soaked rags are rinsed in a solution of sodium hydroxide. The rags are allowed to dry before being placed into the waste. Plutonium metal is controlled by criticality limits. The limit of metal allowed in plant waste is less than 0.05% by weight. This precludes the possibility of significant amounts of metal being placed into the waste. Laboratory materials that are pyrophoric are limited in the quantity allowed in the facility.

CORROSIVE: The only corrosive materials in the waste are potassium hydroxide from an occasional flashlight battery and sodium hydroxide used for neutralizing waste that is known to be acidic.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: The 100% overview with an assay and the RTR assures that the waste and packaging meet the required acceptance criteria. In special cases of high density material, the real-time radiography can be waived provided an independent visual inspection of the waste is performed prior to the final closure of the container. Each drum is vented with a carbon composite filter, and the rigid drum liner is punctured (if present). Each SWB is fitted with at least two and up to four carbon composite filters. The drums are weighed individually and documented. This ensures compliance to weight limits. The TRU waste at the PFP and PUREX is generated in areas where fission products have been eliminated through a chemical process. Thus, calculations are based on Pu-238, Pu-239, Pu-240, Pu-241, Pu-242 and Am-241.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned to shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDCs:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	TRU Combustible Waste	Richland Hanford
002	TRU Combustible Waste	Richland Hanford

CONTENT CODE: SR 116A

CONTENT DESCRIPTION: Combustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: Savannah River Plant job-control waste consists of dry, solid waste materials such as plastics, wood, cloth, paper and other incidental wastes.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in one layer of PE or PVC, and then placed in the single PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive-active neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. The analysis also provides information on heat loading and alpha curies. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging

activities and by Real-Time Radiography (RTR) examination of each 55-gallon drum. Job-control waste is not capable of degrading into free liquids during handling, transport, or storage.

EXPLOSIVE/COMPRESSED GASES: Compressed gases are segregated from certifiable job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of three layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB.

In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories III.1A3 (drums) and III.1B3 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0280 for a single drum and 0.0260 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.3920 for drums and 0.2080 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 116B

CONTENT DESCRIPTION: Combustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCES: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratory (772-F, 773-A and 235-F).

WASTE FORM: Savannah River Plant job-control waste consists of dry, solid waste materials such as plastics, wood, cloth, paper and other incidental wastes.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in two layers of PE or PVC, and then placed in the single PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. The analysis also provides information on heat loading and alpha curies. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging

activities and by real-time radiography (RTR) examination of each 55-gallon drum. Job-control waste is not capable of degrading into free liquids during handling, transport or storage.

EXPLOSIVE/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In

a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories III.1A4 (drums) and III.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0207 for a single drum and 0.0196 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2898 for drums and 0.1568 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 116C

CONTENT DESCRIPTION: Combustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: Savannah River Plant job-control waste consists of dry, solid waste materials such as plastics, wood, cloth, paper and other incidental wastes.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in two layers of PE or PVC, and then placed in the double PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by real-time radiography (RTR) examination of each 55-gallon drum.

Job-control waste is not capable of degrading into free liquids during handling, transport or storage.

EXPLOSIVES/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of five layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories III.1A5 (drums) and III.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0164 for a single drum and 0.0157 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2296 for drums and 0.1256 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 122A

CONTENT DESCRIPTION: Noncombustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: This content code consists of noncombustible waste such as small tools, glassware, metal cans, etc.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in one layer of PE or PVC, and then placed in the single PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by real-time radiography (RTR) examination of each 55-gallon drum.

Job-control waste is not capable of degrading into free liquids during handling, transport or storage.

EXPLOSIVES/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of three layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories II.1A3 (drums) and II.1B3 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0561 for a single drum and 0.0520 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.7854 for drums and 0.4160 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 1223

CONTENT DESCRIPTION: Noncombustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: This content code consists of noncombustible waste such as small tools, glassware, metal cans, etc.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in two layers of PE or PVC, and then placed in the single PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by real-time radiography (RTR) examination of each 55-gallon drum.

Job-control waste is not capable of degrading into free liquids during handling, transport or storage.

EXPLOSIVE/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of four layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories II.1A4 (drums) and II.1B4 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0414 for a single drum and 0.0392 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.5796 for drums and 0.3136 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 122C

CONTENT DESCRIPTION: Noncombustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: This content code consists of noncombustible waste such as small tools, glassware, metal cans, etc.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, bagged in two layers of PE or PVC, and then placed in a double PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

If drums are overpacked in Standard Waste Boxes (SWB), no sealed liner bags are used in the SWB.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by real-time radiography (RTR) examination of each 55-gallon drum.

Job-control waste is not capable of degrading into free liquids during handling, transport, or storage.

EXPLOSIVE/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: There is a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner which is also equipped with a carbon composite filter vent. Each SWB is fitted with at least two and up to four carbon composite filters.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of five layers of plastic bags in a 55-gallon drum or drums overpacked in a SWB. In a drum, at least one layer of plastic is a drum liner bag. This content code is assigned shipping categories II.1A5 (drums) and II.1B5 (SWB overpack).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0328 for a single drum and 0.0314 for an overpacked drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.4592 for drums and 0.2512 for overpacked drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This is a new packaging stream; therefore, there is no correlation.

CONTENT CODE: SR 125A

CONTENT DESCRIPTION: Combustible Job-Control Waste

GENERATING SITE: Savannah River Plant

WASTE DESCRIPTION: Job-control waste is produced from onsite laboratory and production facilities. It consists of contaminated equipment and miscellaneous incidental wastes.

GENERATING SOURCE: The waste originates from the plutonium production facilities (221-HB Line and 221-FB Line) and Laboratories (772-F, 773-A and 235-F) at SRP.

WASTE FORM: Savannah River Plant job-control waste consists of dry, solid waste materials such as plastics, wood, cloth, paper, and other incidental wastes. This content code may contain some noncombustible such as small tools, metal cans, glassware, etc.

WASTE PACKAGING: The waste is placed in a 55-gallon drum with a zinc-galvanized coating and a 90-mil HDPE liner. TRU waste is packaged in a PVC or PE bag, then bagged in two layers of PE or PVC, and then placed in the single or double PE or PVC lined 90-mil HDPE liner. All bag closures are by the fold, twist and tape method.

ASSAY: In the generating facilities, gamma pulse height analysis (PHA) and, in one facility, passive neutron assay is used to determine the grams of TRU isotopes which are placed in a 55-gallon drum. Prior to drum certification, sealed 55-gallon drums are assayed using a passive-active neutron (PAN) assay system developed by Los Alamos National Laboratory. Analysis results are expressed as nanocuries per gram of waste. Assay results are used to calculate Pu-239 fissile equivalent (plus error) and decay heat (plus error).

FREE LIQUIDS: Prior to waste bagout, nonresidual liquids are segregated from certifiable job-control waste. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by real-time radiography (RTR) examination of each 55-gallon drum.

Job-control waste is not capable of degrading into free liquids during handling, transport or storage.

EXPLOSIVE/COMPRESSED GASES: Compressed gases are segregated from job-control waste to render the job-control waste certifiable prior to bagout. This is required by facility waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities and by RTR examination of each 55-gallon drum. Explosives are prohibited in the TRU waste processing facilities.

PYROPHORIC: Normally, no TRU waste streams contain pyrophoric materials. Any pyrophoric materials which could potentially be disposed of as TRU waste have been identified in facility operating procedures. Pyrophoric materials must be segregated from certifiable job-control waste and packaged as noncertifiable waste. This is accomplished through the use of applicable waste packaging procedures. Compliance is ensured by periodic audits of waste packaging activities.

CORROSIVES: Generating facility operating procedures require corrosive materials to be neutralized and absorbed prior to packaging as certifiable waste. Compliance is ensured by periodic audits of waste packaging activities.

CHEMICAL COMPATIBILITY: A chemical compatibility study has been performed on this content code, and all waste is chemically compatible for materials in greater than trace (>1% weight) quantities. The chemicals found in this content code are listed and restricted to the tables found in Appendix 1.3.7 of the SAR.

ADDITIONAL CRITERIA: It is equipped with a carbon composite filter in the drum head. The drum is lined with a 90-mil thick HDPE liner also equipped with a carbon composite filter vent.

SHIPPING CATEGORY: This content code has the waste packaged in a maximum of five layers of plastic bags in a 55-gallon drum. At least one layer of plastic is a large drum liner bag. This content code is assigned to shipping category III.1A5 (drums).

ANALYTICAL CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 0.0164 for a single drum. (See Table 6-1.) The maximum wattage per TRUPACT-II is 0.2296 for drums. (See Table 6-2.)

TEST CATEGORY - MAXIMUM ALLOWABLE WATTAGE: The maximum allowable wattage is 20 per drum and per TRUPACT-II. (See Table 6-3.)

CORRELATION TABLE: This content code has previously been identified as the following IDC:

<u>IDC</u>	<u>DESCRIPTION</u>	<u>WASTE GENERATOR</u>
001	Job-Control Waste	Savannah River Plant

ATTACHMENT B

TRUPACT-II CHEMICAL LIST

Attachment B1 to
NuPac Letter Ref. No. L-10013

Revised List of Chemical Compounds for
Each Content Code in TRUCON

INTRODUCTION

This document is a compilation of the materials and chemicals for each content code listed in the TRUCON document. The previous version (submitted as Attachment B1 to NuPac letter Ref. No. L-9853) has been revised to include new content codes added to the TRUCON document. These content codes have been added to provide the waste for experimental purposes at the WIPP site. The chemical lists in this document are provided by content code for each of the ten DOE waste generating and storage sites. These lists are the basis for evaluating the chemical compatibility of the waste materials, and for grouping the content codes into waste material types.

The following chemical lists were obtained directly from each of the generator and storage sites listed in the TRUCON document. For each content code, the sites produced an extensive list of all possible chemicals present in their waste. This determination was made by either chemical or process flow analysis, or by examining the process technology. Under this system, all chemical inputs into the system are accounted for, even though all of these components may not be a part of the waste. For example, generator sites might include both acids and bases in their lists, even though the two groups have been neutralized prior to placement in a payload container.

The chemical lists are segregated by generating or storage site and content code. The materials and chemicals in each content code have been classified into groups as per the EPA document "A Method for Determining the Compatibility of Hazardous Waste" (EPA-600/2-80-076). As defined in the list, the chemicals are reported in either dominant (>10%), minor (1-10%), or Trace (<1%) quantities.

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Argonne National Laboratory - East
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code AE 111A
IDC 131

SOLIDIFIED LABORATORY WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

SULFURIC ACID (<70%) T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T
CADMIUM	T
CHROMIUM	T
LEAD	T
MERCURY	T

GROUP 107: WATER REACTIVE SUBSTANCES
(Constituents reacted prior to loading in payload containers.)

ALUMINUM CHLORIDE M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

AQUASET/PETROSET	D
ENVIROSTONE	D
VERMICULITE	D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Argonne National Laboratory - East
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code AE 116A
IDCs 111, 121

COMBUSTIBLE WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
COPPER	M
IRON	M
LEAD	M
STAINLESS STEEL	M
TANTALUM	T
TITANIUM	T
ZIRCONIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T
BARIUM CHLORIDE	T
BERYLLIUM	T
CADMIUM	M
CHROMIUM	T
COPPER	M
LEAD	M
MERCURY	T
TITANIUM	T
ZIRCONIUM	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T
CARBON, SPENT, ACTIVATED	T
CELLULOSE	T
GREASE	M
OIL	M
PAPER	M
POLYETHYLENE	M
POLYPROPYLENE	T
POLYSTYRENE	T

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Argonne National Laboratory - East
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code AE 116A
(Continued)
IDCs 121, 121

COMBUSTIBLE WASTE

GROUP 101. COMBUSTIBLE AND FLAMMABLE MATERIALS. MISCELLANEOUS (CONTINUED)

POLYURETHANE	T
POLYVINYL CHLORIDE	T
RESINS (Cation and Anion)	T
RUBBER GLOVES	T
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	T
WOOD	M

OTHER INORGANICS

GLASS, LABWARE	D
GRIT	T
INSULATION	T
SAND	T
SLAG	T
SOIL	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT	T
CONCRETE	M
EMULSIFIERS (Sodium Lauryl Sulfate)	M
ENVIROSTONE	M
OIL-DRI	M
SLUDGE	M
VERMICULITE	M

-
- 0 - Dominant Component (>10 % by wt.)
 - 1 - Minor Component (1 - 10 % by wt.)
 - 2 - Trace Component (<1 % by wt.)
 - 3 - Trace Component (<0.1 % by wt.)
 - 4 - Trace Component (low PPM range)
 - 5 - Trace Component (<1 PPM range)

Argonne National Laboratory - East
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes AE 116A, AE 116B
IDCs 110, 120

COMBUSTIBLE WASTE

GROUP 19: KETONES

ACETONE T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM M
STAINLESS STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC T1
CADMIUM T
LEAD T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE T
CARBON, SPENT, ACTIVATED T1
CELLULOSE D
OIL T
PAPER D
POLYETHYLENE D
POLYPROPYLENE M
POLYSTYRENE M
POLYURETHANE M
POLYVINYL CHLORIDE M
RESINS (Anion and Cation) M
RUBBER GLOVES D
SYNTHETIC RUBBER M
WOOD M

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Argonne National Laboratory - East
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes AE 116A, AE 116B
(Continued)
IDCs 110, 120

COMBUSTIBLE WASTE

OTHER INORGANICS

GLASS, LABWARE

T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT

T

CONCRETE

T

ENVIROSTONE

T

VERMICULITE

T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111A
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T3
--------------------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rev. 2, June 1989

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111A

(Continued)

IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES
SLUDGE (Fixed in matrix)
WATER

T
D
T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)

T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE
PORTLAND CEMENT (Hydrated)

D
D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111B
IDCs 001, 002, 007, 976, 978

SOLIDIFIED AQUEOUS WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING	
(Constituents reacted prior to loading in payload containers.)	
ACID RESIDUES	T
GROUP 4: ALCOHOLS AND GLYCOLS	
BUTANOL	T
METHANOL	T
GROUP 10: CAUSTICS	
(Constituents reacted prior to loading in payload containers.)	
CAUSTIC RESIDUES	T
SODIUM HYDROXIDE	T
GROUP 16: HYDROCARBONS, AROMATIC	
XYLENE	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T
TETRACHLOROETHYLENE	T
TRICHLOROETHYLENE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
LOW CARBON STEEL	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111B
(Continued)
IDCs 001, 002, 007, 976, 978

SOLIDIFIED AQUEOUS WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
CADMIUM	T
LEAD	T
MERCURY	T
SODIUM CHROMATE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	T
POLYPROPYLENE	T
POLYVINYL CHLORIDE (Packaging Material)	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
SPENT DETERGENTS	T

OTHER INORGANICS

ALUMINUM HYDROXIDE	T
CALCIUM CHLORIDE	T
CLAY (BENTONITE)	T
GRIT	D
IRON HYDROXIDE	T
SAND	T

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111B
(Continued)
IDCs 001, 002, 007, 976, 979

SOLIDIFIED AQUEOUS WASTE

OTHER INORGANICS (CONTINUED)

SODIUM CHLORIDE	D
SOIL	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
PORTLAND CEMENT (Hydrated)	M
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111C
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
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GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T3
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-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 111C
(Continued)
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
--------------------------------------	---

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE	D
PORTLAND CEMENT (Hydrated)	D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (Low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 112A
IDCs 700, 801, 808

SOLIDIFIED ORGANICS

GROUP 4: ALCOHOLS AND GLYCOLS

POLYETHYLENE GLYCOL M

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE M (808)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE D (801)

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE M (801)

CARBON TETRACHLORIDE M (801)

CHLOROFORM D (808)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL D (801)

POLYETHYLENE (Packaging Material) T

POLYVINYL CHLORIDE (Packaging Material) T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE (CaSO₄) D

POTASSIUM SULFATE M

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 113A
IDC 802

SOLIDIFIED LABORATORY WASTE

GROUP 3: ACIDS, ORGANIC

(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T
ASCORBIC ACID	T
CITRIC ACID	T
OXALIC ACID	T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T1
ETHANOL	T1
ISOPROPANOL	T1
METHANOL	T1

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T1
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GROUP 19: KETONES

THENOYL TRIFLUOROACETONE (TTA)	T
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T
TRIOCTYL PHOSPHINE OXIDE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 113A
(Continued)
IDC 802

SOLIDIFIED LABORATORY WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES (Fixed in matrix) M
WATER T

OTHER ORGANICS

1,10-PHENANTHROLINE	T3
ALPHA-HYDROXYQUINOLINE	T
EDTA	T
SODIUM ACETATE	T
SODIUM CITRATE	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

MAGNESIA CEMENT (Hydrated)	D
PORTLAND CEMENT (Hydrated)	D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 115A
IDCs 300, 303, 312

GRAPHITE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	D
-------------------------------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 115B
IDC 300

GRAPHITE WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL

M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER

T

POLYETHYLENE (Packaging Material)

M

POLYVINYL CHLORIDE (Packaging Material)

M

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE

D

OTHER INORGANICS

CLAY (BENTONITE)

D

SODIUM CHLORIDE

D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

T

VERMICULITE

M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 115C
IDCs 300, 303, 312

GRAPHITE WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL

M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)

T

POLYVINYL CHLORIDE (Packaging Material)

T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE

D

OTHER INORGANICS

CLAY (BENTONITE)

D

SODIUM CHLORIDE

D

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 116A
IDCs 330, 336, 337, 831, 832, 833

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	D
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
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-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 116B
IDCs 330, 336, 337, 900, 970

COMBUSTIBLE WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T
TRICHLOROETHYLENE	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
COPPER	T
IRON	T
LEAD	T
LOW CARBON STEEL	M
STAINLESS STEEL	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
LEAD	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	D
PAPER	D
POLYETHYLENE	D
POLYPROPYLENE	D
POLYVINYL CHLORIDE	D
RUBBER GLOVES	D
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	M
WOOD	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 116B
(Continued)
IDCs 330, 336, 337, 900, 970

COMBUSTIBLE WASTE

OTHER INORGANICS

BATTERIES (Lead-acid, dry)	T
CLAY (BENTONITE)	D
GLASS, LABWARE	T
OTHER FILTERS	T
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	T
OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 116C
IDCs 330, 336, 337, 831, 832, 833

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers..)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	D
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (Low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117A
IDCs 320, 321, 480, 488, 854

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T (480, 488)
SODIUM FLUORIDE	T (480, 488)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2 (480)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T2 (480)
CARBON TETRACHLORIDE	T2 (480)
METHYLENE CHLORIDE	T1 (480)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D (480)
COPPER	D (480)
IRON	D (480)
LEAD	D (320, 321, 488)
STAINLESS STEEL	D (480, 488)
TANTALUM	D (320)
TUNGSTEN	D (320)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2 (480)
BERYLLIUM	D (854)
COPPER	D (480)
LEAD	D (320, 321, 488)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117A
(Continued)
IDCs 320, 321, 480, 488, 854

METAL WASTE

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CIL-DRI

M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117B
IDCs 320, 416, 480, 481

METAL WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D
COPPER	D
IRON	D
IRON TIN (ALLOY)	D
LEAD	M
LOW CARBON STEEL	M
PLATINUM	T
STAINLESS STEEL	D
TANTALUM	D
TUNGSTEN	M
ZINC MAGNESIUM (ALLOY)	D

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	D
LEAD	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117B
(Continued)
IDCs 320, 416, 480, 481

METAL WASTE

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117C
IDCs 320, 321, 480, 488, 854

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers)

CALCIUM FLUORIDE	T (480, 488)
SODIUM FLUORIDE	T (480, 488)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2 (480)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T2 (480)
CARBON TETRACHLORIDE	T2 (480)
METHYLENE CHLORIDE	T1 (480)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D (480)
COPPER	D (480)
IRON	D (480)
LEAD	D (320, 321, 488)
LOW CARBON STEEL	M
STAINLESS STEEL	D (480, 488)
TANTALUM	D (320)
TUNGSTEN	D (320)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	D (854)
BERYLLIUM	T2 (480)
COPPER	D (480)
LEAD	D (320, 321, 488)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 117C
(Continued)
IDCs 320, 321, 480, 488, 854

METAL WASTE

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 118A
IDCs 368, 370, 440, 442, 443, 444

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3 (443)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3 (443)
CARBON TETRACHLORIDE	T3 (443)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	T (444)
LEAD	D (444)
STEEL	T (444)
TUNGSTEN	T (444)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D (444)
MERCURY	T2 (444)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

GLASS, LABWARE	D (440, 444)
GLASS, RASCHIG RINGS	D (442, 443)
MOLDS AND CRUCIBLES, CERAMIC	D (368, 370)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
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D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 118B
IDCs 440, 442

GLASS WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING	
(Constituents reacted prior to loading in payload containers.)	
NITRIC ACID	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
LEAD	T
LOW CARBON STEEL	M
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
LEAD	T
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M
OTHER INORGANICS	
CLAY (BENTONITE)	D
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
SODIUM CHLORIDE	D

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Rev. 2, June 1989

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 118B
(Continued)
IDCs 440, 442

GLASS WASTE

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI
VERMICULITE

T
M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 118C
IDCs 368, 370, 440, 442, 443, 444

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3 (443)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3 (443)
CARBON TETRACHLORIDE	T3 (443)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	T (444)
LEAD	D (444)
LOW CARBON STEEL	M
STEEL	T (444)
TUNGSTEN	T (444)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D (444)
MERCURY	T2 (444)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
GLASS, LAMINAR	D (440,444)
GLASS, RASCHIG RINGS	D (442,443)
MOLDS AND CRUCIBLES, CERAMIC	D (368,370)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 119A
IDCs 335, 338, 342, 376, 490, 491

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1 (335, 338, 376, 490, 491)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1 (335, 338, 376, 490, 491)
CARBON TETRACHLORIDE	T1 (335, 338, 376, 490, 491)
METHYLENE CHLORIDE	T2 (335, 338, 376, 490, 491)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D (335, 338, 342, 376, 490)
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE	M
POLYPROPYLENE (Ful-Flo Filters)	D (376)
POLYVINYL CHLORIDE	M
WOOD	D (335, 342, 376, 490)
WOOD	M (491)

OTHER INORGANICS

HEPA FILTERS (or filter media)	D (335, 338, 342, 376, 490)
OTHER FILTERS	D (376)
PLENUM PREFILTERS (FIBERGLASS)	D (491)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M (376)
----------------------------	---------

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 119B
IDCs 335, 338, 490

FILTER WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CAUSTIC RESIDUES T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T
CARBON TETRACHLORIDE T
METHYLENE CHLORIDE T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM M
LOW CARBON STEEL M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER T
POLYETHYLENE M
POLYPROPYLENE (Ful-Flo Filters) M
POLYVINYL CHLORIDE M
SYNTHETIC RUBBER T
WOOD M

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

NITRATES T

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 119B
(Continued)
XDCs 335, 338, 490

FILTER WASTE

OTHER INORGANICS

ASBESTOS	M
CLAY (BENTONITE)	D
FIBERGLASS	M
HEPA FILTERS	M
INSULATION	D
OTHER FILTERS	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
PORTLAND CEMENT (Hydrated)	T

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - TL = Trace Component (<0.1 % by wt.)
 - LL = Trace Component (low PPM range)
 - UL = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 119C
IDCs 335, 338, 342, 376, 490, 491

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1 (335, 338, 376, 490, 491)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1 (335, 338, 376, 490, 491)
CARBON TETRACHLORIDE	T1 (335, 338, 376, 490, 491)
METHYLENE CHLORIDE	T2 (335, 338, 376, 490, 491)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D (335, 338, 342, 376, 490)
LOW CARBON STEEL	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE	M
POLYPROPYLENE (Ful-Flo Filters)	D (376)
POLYVINYL CHLORIDE	M
WOOD	D (335, 342, 376, 490)
WOOD	M (491)

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D (335, 338, 342, 376, 490)
OTHER FILTERS	D (376)
PLENUM PREFILTERS (FIBERGLASS)	D (491)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M (376)
----------------------------	---------

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 121A
IDCs 302, 374

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (374)
METHYLENE CHLORIDE	T1 (374)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D (374)
PHENOLIC RESINS	T (302)
POLYETHYLENE	T
POLYMETHYL METHACRYLATE	D (302)
POLYVINYL CHLORIDE	T
WOOD	D (302)

OTHER INORGANICS

SAND	D (374)
SOIL	D (374)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D (374)
OIL-DRI	M (374)

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 121B
IDCs 302, 464

ORGANIC SOLID WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON	T
LEAD	D
LOW CARBON STEEL	M
STAINLESS STEEL	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BENELEX	D
PAPER	T
PLEXIGLAS	D
POLYETHYLENE	M
POLYVINYL CHLORIDE	M
SYNTHETIC RUBBER	T

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 121C
IDCs 302, 374

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (374)
METHYLENE CHLORIDE	T1 (374)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D (374)
PHENOLIC RESINS	T (302)
POLYETHYLENE	T
POLYMETHYL METHACRYLATE	D (302)
POLYVINYL CHLORIDE	T
WOOD	D (302)

OTHER INORGANICS

CLAY (BENTONITE)	D
SAND	D (374)
SODIUM CHLORIDE	D
SOIL	D (374)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D (374)
OIL-DRI	M (374)

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Rev. 2, June 1989

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 122A
IDCs 371, 375, 377, 379, 438

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (375)
CARBON TETRACHLORIDE	T1 (375)
METHYLENE CHLORIDE	T1 (375)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

FIREBRICK	D (371, 377, 379)
INSULATION	D (438)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M (371, 377, 379, 438)
OIL-DRI	D (375)

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 122B
IDCs 370, 371

SOLID INORGANIC WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

COPPER	T
IRON	T
IRON TIN (ALLOY)	M
LOW CARBON STEEL	M
TIN	T
TITANIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
TITANIUM	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
CRUCIBLES, CERAMIC (Silicate-based)	D
FIREBRICK	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 122C
IDCs 371, 375, 377, 379, 438

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (375)
CARBON TETRACHLORIDE	T1 (375)
METHYLENE CHLORIDE	T1 (375)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
FIREBRICK	D (371, 377, 379)
INSULATION	D (438)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M (371, 377, 379, 438)
OIL-DRI	D (375)

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Rev. 2, June 1989

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 123A
IDC 339

LEADED RUBBER

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves)

D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE

T

POLYVINYL CHLORIDE

T

RUBBER GLOVES, LEADED

D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 123B
IDCs 339, 463

LEADED RUBBER WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T

POLYVINYL CHLORIDE T

RUBBER GLOVES, LEADED D

OTHER INORGANICS

CLAY (BENTONITE) D

SODIUM CHLORIDE D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI T

VERMICULITE M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 123C
IDC 339

LEADED RUBBER

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves) D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T
POLYVINYL CHLORIDE T
RUBBER GLOVES, LEADED D

OTHER INORGANICS

CLAY (BENTONITE) D
SODIUM CHLORIDE D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 124A
IDCs 411, 429, 433, 454

PYROCHEMICAL SALT WASTE

GROUP 10: CAUSTICS

(Constituents dispersed in chloride salts.)

CALCIUM OXIDE M (454)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

MAGNESIUM OXIDE T1 (411, 429, 433)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material) T

POLYVINYL CHLORIDE (Packaging Material) T

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents dispersed in chloride salts.)

CALCIUM OXIDE M (454)

OTHER INORGANICS

CALCIUM CHLORIDE D (433, 454)

CESIUM CHLORIDE D (433)

CESIUM CHLORIDE M (454)

MAGNESIUM CHLORIDE D

METAL CANS (for salt) M

POTASSIUM CHLORIDE D (411, 429, 454)

SODIUM CHLORIDE D (411, 429, 454)

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 125A
IDCs 241, 441

COMBUSTIBLE AND NONCOMBUSTIBLE WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING (Constituents reacted prior to loading in payload containers.)	
HYDROCHLORIC ACID	T
GROUP 2: ACIDS, MINERAL, OXIDIZING (Constituents reacted prior to loading in payload containers.)	
NITRIC ACID	T
GROUP 16: HYDROCARBONS, AROMATIC	
XYLENE	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T
GROUP 18: ISOCYANATES	
AMMONIUM THIOCYANATE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
IRON	T
LEAD	M
LOW CARBON STEEL	M
STEEL	M
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
LEAD	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 125A
(Continued)
IDCs 241, 441

COMBUSTIBLE AND NONCOMBUSTIBLE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T
OIL	T
PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYPROPYLENE	T
POLYVINYL CHLORIDE (Packaging Material)	M
RUBBER GLOVES	T
RUBBER GLOVES, LEADED	M
SYNTHETIC RUBBER	T

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

NITRATES	T
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OTHER INORGANICS

CLAY (BENTONITE)	D
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 126A
IDCs 806, 809, 817, 818, 820, 822, 823

CEMENTED PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
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GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex)	D
POLYETHYLENE	T
POLYVINYL CHLORIDE	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

OTHER INORGANICS

FIREBRICK	D
GRIT	D
SAND	D

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 126A
(Continued)

IDCs 806, 809, 817, 818, 820, 822, 823

CEMENTED PROCESS SOLIDS

OTHER INORGANICS (CONTINUED)

SLAG	D
SOOT	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
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D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 126B
IDC 432

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL

M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE

M

POLYVINYL CHLORIDE

M

RESINS

D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER

T

OTHER INORGANICS

CLAY (BENTONITE)

D

SODIUM CHLORIDE

D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

T

PORTLAND CEMENT (Hydrated)

D

VERMICULITE

M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 126C
IDCs 806, 809, 817, 818, 820, 822, 823

CEMENTED PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
--------	----

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex)	D
POLYETHYLENE	T
POLYVINYL CHLORIDE	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 126C

(Continued)

IDCs 806, 809, 817, 818, 820, 822, 823

CEMENTED PROCESS SOLIDS

OTHER INORGANICS

CLAY (BENTONITE)	D
FIREBRICK	D
GRIT	D
SAND	D
SLAG	D
SODIUM CHLORIDE	D
SOOT	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
----------------------------	---

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T1 = Trace Component (<1 % by wt.)
 - T2 = Trace Component (<0.1 % by wt.)
 - T3 = Trace Component (low PPM range)
 - T4 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127A

IDCs 001, 002, 007, 241, 302, 330, 335, 336, 337, 338,
339, 441, 463, 464, 490, 900, 970, 976, 978

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID I

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

ACID RESIDUES T
NITRIC ACID T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL T
METHANOL T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CAUSTIC RESIDUES T
SODIUM HYDROXIDE T

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T
CARBON TETRACHLORIDE T
METHYLENE CHLORIDE T
TETRACHLOROETHYLENE T
TRICHLOROETHYLENE T

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127A
(Continued)

IDCs 001, 002, 007, 241, 302, 330, 335, 336, 337, 338,
339, 441, 463, 464, 490, 900, 970, 976, 978

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 18: ISOCYANATES

AMMONIUM THIOCYANATE	T
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GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	M
COPPER	T
IRON	T
LEAD	D
LOW CARBON STEEL	M
STAINLESS STEEL	T
STEEL	M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
CADMIUM	T
COPPER	T
LEAD	D
MERCURY	T
SODIUM CHROMATE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T
BEWELEX	D
CELLULOSE	D
OIL	T
PAPER	D
FLEXIGLAS	D
POLYETHYLENE	D
POLYPROPYLENE	D

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127A

(Continued)

IDCs 001, 002, 007, 241, 302, 330, 335, 336, 337, 339,
339, 441, 463, 464, 490, 900, 970, 976, 978

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

POLYVINYL CHLORIDE	D
RUBBER GLOVES	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	M
WOOD	M

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

NITRATES	T
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GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
SPENT DETERGENTS	T

OTHER INORGANICS

ALUMINUM HYDROXIDE	T
ASBESTOS	M
BATTERIES (Lead-acid, dry)	T
CALCIUM CHLORIDE	T
CLAY (BENTONITE)	D
FIBERGLASS	M
GLASS, LABWARE	D

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127A

(Continued)

IDCs 001, 002, 007, 241, 302, 330, 335, 336, 337, 339,
339, 441, 463, 464, 490, 900, 970, 976, 978

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

OTHER INORGANICS (CONTINUED)

GLASS, RASCHIG RINGS	D
GRIT	T
PEPA FILTERS	M
INSULATION	D
IRON HYDROXIDE	M
OTHER FILTERS	D
SAND	T
SODIUM CHLORIDE	D
SOIL	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	T
OIL-DRI	M
PORTLAND CEMENT (Hydrated)	M
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127B

IDCs 302, 330, 335, 336, 337, 338, 339, 342, 374, 376,
490, 491, 800, 803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
LOW CARBON STEEL	M

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127B

(Continued)

IDCs 302, 330, 335, 336, 337, 338, 339, 342, 374, 376,
490, 491, 800, 803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	D

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHICATES

TRIBUTYL PHOSPHATE	T3
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D
PAPER	D
PHENOLIC RESINS	T
POLYETHYLENE	D
POLYMETHYL METHACRYLATE	D
POLYPROPYLENE (Ful-Flo Filters)	D
POLYVINYL CHLORIDE	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	D
WOOD	D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
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-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 127B

(Continued)

IDCs 302, 330, 335, 336, 337, 338, 339, 342, 374, 376,
490, 491, 800, 803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D
OTHER FILTERS	D
PLENUM PREFILTERS (FIBERGLASS)	D
SAND	D
SODIUM CHLORIDE	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D
DIATOMITE	D
OIL-DRI	M
PORTLAND CEMENT (Hydrated)	D

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 211A
IDCs 001, 002, 007, 976, 978

SOLIDIFIED AQUEOUS WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

ACID RESIDUES T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL T
METHANOL T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CAUSTIC RESIDUES T
SODIUM HYDROXIDE T

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T
CARBON TETRACHLORIDE T
METHYLENE CHLORIDE T
TETRACHLOROETHYLENE T
TRICHLOROETHYLENE T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM T
CADMIUM T
LEAD T
MERCURY T
SODIUM CHROMATE T

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 211A
(Continued)
IDCs 001, 002, 007, 976, 978

SOLIDIFIED AQUEOUS WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	T
POLYPROPYLENE	T
POLYVINYL CHLORIDE (Packaging Material)	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
SPENT DETERGENTS	T

OTHER INORGANICS

ALUMINUM HYDROXIDE	T
CALCIUM CHLORIDE	T
GRIT	T
IRON HYDROXIDE	M
SAND	T
SOIL	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
PORTLAND CEMENT (Hydrated)	M
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 212A
IDC 003

SOLIDIFIED ORGANIC PROCESS SOLIDS

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	M
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	M
CARBON TETRACHLORIDE	D
METHYLENE CHLORIDE	M
TETRACHLOROETHYLENE	T
TRICHLOROETHYLENE	M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL (Absorbed)	D
POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CALCIUM SILICATE	D
OIL-DRI	M
VERMICULITE	T

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 213A
IDC 004

SOLIDIFIED LAB WASTE

GROUP 3: ACIDS, ORGANIC	
(Constituents reacted prior to loading in payload containers)	
ORGANIC ACIDS	M
GROUP 4: ALCOHOLS AND GLYCOLS	
BUTANOL	T
METHANOL	T
GROUP 16: HYDROCARBONS, AROMATIC	
XYLENE	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
CADMIUM	T
LEAD	T
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T
GROUP 106: WATER AND MIXTURES CONTAINING WATER	
AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE	T
WATER	T

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Rev. 2, June 1983

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 213A
(Continued)
IDC 004

SOLIDIFIED LAB WASTE

OTHER ORGANICS

CHELATING AGENTS
EDTA

T
T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE
PORTLAND CEMENT (Hydrated)

D
D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 215A
IDC 300

GRAPHITE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	D
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OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Rev. 2, June 1989

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes ID 216A, ID 216B, ID 216C
IDCs 330, 336, 337, 900, 970

COMBUSTIBLE WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T
TRICHLOROETHYLENE	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
COPPER	T
IRON	T
LEAD	T
STAINLESS STEEL	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
LEAD	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	D
PAPER	D
POLYETHYLENE	D
POLYPROPYLENE	D
POLYVINYL CHLORIDE	D
RUBBER GLOVES	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	M
WOOD	M

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes ID 216A, ID 216B, ID 216C
(Continued)

IDCs 330, 336, 337, 900, 970

COMBUSTIBLE WASTE

OTHER INORGANICS

BATTERIES (Lead-acid, dry)	T
GLASS, LABWARE	T
OTHER FILTERS	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	T
OIL-DRI	T
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 217A
IDC 416

METAL WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON TIN (ALLOY)	D
STAINLESS STEEL	D
ZINC MAGNESIUM (ALLOY)	D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes ID 217B, ID 217C
IDCs 320, 480, 481

METAL WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
COPPER	D
IRON	D
LEAD	M
PLATINUM	T
STAINLESS STEEL	D
TANTALUM	D
TUNGSTEN	M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	D
LEAD	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes ID 218A, ID 218B
IDCs 440, 442

GLASS WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING	
(Residues on glass after allowing waste to drain.)	
NITRIC ACID	T
GROUP 11: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
LEAD	T
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
LEAD	T
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M
OTHER INORGANICS	
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
OTHER SOLIDIFICATION MATERIAL/ABSORBENTS	
OIL-DRI	T
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 219A
IDCs 335, 338, 490

FILTER WASTE

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CAUSTIC RESIDUES T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T
CARBON TETRACHLORIDE T
METHYLENE CHLORIDE T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER T
POLYETHYLENE M
POLYPROPYLENE (Ful-Flo Filters) M
POLYVINYL CHLORIDE M
SYNTHETIC RUBBER T
WOOD M

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

NITRATES T

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 219A
(Continued)
IDCs 335, 338, 490

FILTER WASTE

OTHER INORGANICS

ASBESTOS	M
FIBERGLASS	M
HEPA FILTERS	M
INSULATION	D
OTHER FILTERS	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
PORTLAND CEMENT (Hydrated)	T

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 221A
IDCs 302, 464

SOLID ORGANIC WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON	T
LEAD	D
STAINLESS STEEL	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BENELEX	D
PAPER	T
PLEXIGLAS	D
POLYETHYLENE	M
POLYVINYL CHLORIDE	M
SYNTHETIC RUBBER	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
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D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 222A
IDC 370

SOLID INORGANIC WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

COPPER	T
IRON	T
IRON TIN (ALLOY)	M
TIN	T
TITANIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
TITANIUM	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CRUCIBLES, CERAMIC (Silicate-based)	D
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OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 222B
IDC 371

SOLID INORGANIC WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	T
POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

OTHER INORGANICS

FIREBRICK	D
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OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 223A
IDCs 339, 463

LEADED RUBBER WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T
POLYVINYL CHLORIDE T
RUBBER GLOVES, LEADED D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CIL-DRI T
VERMICULITE M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 224A

IDCs 410, 411, 412

PYROCHEMICAL SALT WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON TIN (ALLOY) M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER T

POLYETHYLENE (Packaging Material) M

POLYVINYL CHLORIDE (Packaging Material) M

OTHER INORGANICS

SALT (Fused chloride) D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI T

VERMICULITE M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (low PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 225A
IDC 241

COMBUSTIBLE AND NONCOMBUSTIBLE WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING	
(Constituents reacted prior to loading in payload containers.)	
HYDROCHLORIC ACID	T
GROUP 2: ACIDS, MINERAL, OXIDIZING	
(Constituents reacted prior to loading in payload containers.)	
NITRIC ACID	T
GROUP 16: HYDROCARBONS, AROMATIC	
XYLENE	T
GROUP 17: HALOGENATED ORGANICS	
METHYLENE CHLORIDE	T
GROUP 18: ISOCYANATES	
AMMONIUM THIOCYANATE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
IRON	T
LEAD	M
STEEL	M
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
LEAD	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 225A
(Continued)
IDC 241

COMBUSTIBLE AND NONCOMBUSTIBLE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T
PAPER	T
POLYETHYLENE	M
POLYPROPYLENE	T
POLYVINYL CHLORIDE	M
RUBBER GLOVES	T
RUBBER GLOVES, LEADED	M
SYNTHETIC RUBBER	T

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

NITRATES	T
----------	---

OTHER INORGANICS

GLASS, LABWARE	M
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OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 225B
IDC 441

GLASS WASTE WITH OIL RESIDUES

GROUP 2: ACIDS, MINERAL, OXIDIZING (Constituents reacted prior to loading in payload containers)	
NITRIC ACID	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
LEAD	T
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
LEAD	T
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
OIL	T
PAPER	T
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M
OTHER INORGANICS	
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
OTHER SOLIDIFICATION MATERIAL/ABSORBENTS	
OIL-DRI	T
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Idaho National Engineering Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code ID 226A
IDC 432

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE	M
POLYVINYL CHLORIDE	M
RESINS	D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
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OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	T
PORTLAND CEMENT (Hydrated)	D
VERMICULITE	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes LA 111A, LA 211A
IDC 002

CEMENTED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T3
METHANOL	T3

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T2
BARIUM HYDROXIDE	T3
BERYLLIUM HYDROXIDE	T2
CALCIUM OXIDE	T2
POTASSIUM HYDROXIDE	T2
SODIUM CARBONATE	T2
SODIUM HYDROXIDE	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE	T2
CALCIUM FLUORIDE	T2
POTASSIUM FLUORIDE	T2

GROUP 19: KETONES

METHYL ETHYL KETONE	T3
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GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T3
BARIUM CHLORIDE	T3
BARIUM HYDROXIDE	T3
BERYLLIUM	T3
BERYLLIUM HYDROXIDE	T2
CADMIUM	T3
LEAD	T3

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rev. 2, June 1989

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes LA 111A, LA 211A
(Continued)
IDC 002

CEMENTED AQUEOUS WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

MERCURY

T3

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

RUBBER GLOVES

T2

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

AMMONIUM NITRATE

T2

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

SODIUM NITRATE

T2

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES
WATER

T1

T1

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers.)

CALCIUM OXIDE

T2

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CALCIUM SILICATE (Water glass - Na silicate)
PORTLAND CEMENT (Hydrated)
VERMICULITE

M

D

M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes LA 111B, LA 211B
IDC 003

SOLIDIFIED AQUEOUS WASTE

GROUP 10: ALCOHOLS AND GLYCOLS

ETHANOL	T3
ISOPROPANOL	T3

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T2
BARIUM HYDROXIDE	T3
BERYLLIUM HYDROXIDE	T3
CALCIUM OXIDE	T2
POTASSIUM HYDROXIDE	T2
SODIUM CARBONATE	T2
SODIUM HYDROXIDE	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE	T2
CALCIUM FLUORIDE	T2
POTASSIUM FLUORIDE	T2

GROUP 19: KETONES

ACETONE	T3
METHYL ACETONE	T3
METHYL ETHYL KETONE	T3

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T3
BARIUM CHLORIDE	T3
BARIUM HYDROXIDE	T3
BERYLLIUM	T3
BERYLLIUM HYDROXIDE	T3

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T1 - Trace Component (<1 % by wt.)
 - T2 - Trace Component (<0.1 % by wt.)
 - T3 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes LA 111B, LA 211B
(Continued)
IDC 003

SOLIDIFIED AQUEOUS WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

CADMIUM	T3
LEAD	T3
MERCURY	T3

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

OILS (C6 TO C20)	T2
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

GREASE	T2
OIL	T2
POLYETHYLENE (Packaging Material)	T3
RESINS	T2

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

AMMONIUM NITRATE	T2
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GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

SODIUM NITRATE	T2
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GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T1
WATER	T1

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Rev. 2, June 1989

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes LA 111B, LA 211B
(Continued)
IDC 003

SOLIDIFIED AQUEOUS WASTE

GROUP 107 WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers.)

CALCIUM OXIDE T2

OTHER INORGANICS

CALCIUM CARBONATE M
FERRIC HYDROXIDE M
PERLITE M
SALT T2

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PERLITE M
PORTLAND CEMENT (Hydrated) M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 114A
IDC 006

SOLIDIFIED INORGANIC PROCESS SOLIDS

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T2
NITRIC ACID	T2
PHOSPHORIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T2
PERCHLORIC ACID	T2

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

OXALIC ACID	T2
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GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T2
METHANOL	T2

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

HYDROXYLAMINE	T2
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GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CALCIUM OXIDE	T1
POTASSIUM HYDROXIDE	T2
SODIUM HYDROXIDE	T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 114A
(Continued)
IDC 006

SOLIDIFIED INORGANIC PROCESS SOLIDS

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T1
HYDROFLUORIC ACID	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
BROMOFORM	T2
CARBON TETRACHLORIDE	T2
DICHLOROETHANE	T2
TRICHLOROETHYLENE	T2

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM	T
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GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON	T3
STAINLESS STEEL	T3
TANTALUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BERYLLIUM	T2
CADMIUM	T2
LEAD	T1
MERCURY	T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 114A
(Continued)
IDC 006

SOLIDIFIED INORGANIC PROCESS SOLIDS

GROUP 27: NITRO COMPOUNDS

(Constituents reacted prior to loading in payload containers.)

NITROCELLULOSE	T2
UREA NITRATE	T2

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

OILS (C6 TO C20)	T2
------------------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	T1
OIL	T2
POLYETHYLENE (Packaging Material)	T1
POLYPROPYLENE (Ful-Flo Filters)	T
POLYVINYL CHLORIDE (Packaging Material)	T1
RESINS	T1
RUBBER GLOVES, LEADED	T1
SYNTHETIC RUBBER	T2
WOOD	T2

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

AMMONIUM NITRATE	T
NITROCELLULOSE	T2

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T2
OTHER NITRATE SALTS	M
SODIUM NITRATE	D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 114A
(Continued)
IDC 006

SOLIDIFIED INORGANIC PROCESS SOLIDS

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T1
WATER	T1

GROUP 107: WATER REACTIVE SUBSTANCES
(Constituents reacted prior to loading in payload containers.)

CALCIUM OXIDE	T1
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OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	T
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OTHER INORGANICS

ASH	M
FIREBRICK	T1
GLASS, LABWARE	T
GRIT	T1
INSULATION	T2
MOLDS AND CRUCIBLES, CERAMIC	T
SALT (Calcium Fluoride and Calcium Chloride)	T1
SAND	T1
SLAG	T1
SOOT	T2

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE	D
OXALATE SALTS	M
SURFACTANTS	T1
VERMICULITE	T1

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 115A
IDC 005 P2G

GRAPHITE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

MERCURY (VAPOR)	T2
NICKEL	T2
ZIRCONIUM	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T1
COPPER	T1
IRON	T2
LEAD	T2
STAINLESS STEEL	T1
TANTALUM	T1
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BERYLLIUM	T2
BERYLLIUM HYDROXIDE	T2
CADMIUM	T2
COPPER	T1
LEAD	T2
MERCURY	T2
ZIRCONIUM	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BACELITE	T1
BEWELEX	T1
PLEXIGLAS	T1
POLYETHYLENE (Packaging Material)	T1
POLYPROPYLENE	T1

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 115A
(Continued)
IDC 005 P2G

GRAPHITE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

POLYVINYL CHLORIDE (Packaging Material) T1

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE D

OTHER INORGANICS

ASH	T1
FIREBRICK	T
GLASS, LABWARE	T1
GRIT	T1
SLAG	T1
SOOT	T1

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 116A
IDC 004

COMBUSTIBLE WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

BORIC ACID	T2
HYDROBROMIC ACID	T2
HYDROCHLORIC ACID	T1
HYDROFLUORIC ACID	T1
NITRIC ACID	T1
PHOSPHORIC ACID	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T1
PERCHLORIC ACID	T2

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T2
ASCORBIC ACID	T
CITRIC ACID	T
OXALIC ACID	T1

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T1
ISOPROPANOL	T2
METHANOL	T2

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

HYDROXYLAMINE	T1
---------------	----

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 116A
(Continued)
IDC 004

COMBUSTIBLE WASTE

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers)

AMMONIUM HYDROXIDE	T2
BARIUM HYDROXIDE	T2
BERYLLIUM HYDROXIDE	T1
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	T1
SODIUM CARBONATE	T1
SODIUM HYDROXIDE	T1
SODIUM HYPOCHLORITE	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
HYDROFLUORIC ACID	T2
POTASSIUM FLUORIDE	T2

GROUP 16: HYDROCARBONS, AROMATIC

TOLUENE	T2
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GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
BROMOFORM	T2
CARBON TETRACHLORIDE	T2
DICHLOROETHANE	T2
TRICHLOROETHYLENE	T1

GROUP 19: KETONES

ACETONE	T2
PHENOYL TRIFLUOROACETONE (TTA)	T

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 116A

(Continued)

IDC 004

COMBUSTIBLE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

MERCURY (VAPOR)	T2
NICKEL	T2
ZIRCONIUM	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T2
COPPER	T2
IRON	T2
LEAD	T2
STAINLESS STEEL	T2
TANTALUM	T2
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BARIUM CHLORIDE	T2
BARIUM HYDROXIDE	T2
BERYLLIUM	T2
BERYLLIUM HYDROXIDE	T1
CADMIUM	T2
COPPER	T2
LEAD	T2
MERCURY	T2
ZIRCONIUM	T2

GROUP 25: NITRIDES

(Constituents reacted prior to loading in payload containers.)

SODIUM NITRIDE	T1
----------------	----

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 116A
(Continued)
IDC 004

COMBUSTIBLE WASTE

GROUP 27: NITRO COMPOUNDS

(Constituents reacted prior to loading in payload containers)

NITROCELLULOSE T1

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	M
BENELEX	T
CARBON, SPENT, ACTIVATED	T
CELLULOSE	D
GREASE	T1
OIL	T1
PAPER	M
PLEXIGLAS	T
POLYETHYLENE	D
POLYPROPYLENE	M
POLYSTYRENE	T
POLYURETHANE	M
POLYVINYL CHLORIDE	D
RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T2
SYNTHETIC RUBBER	M
WAXES	T1
WOOD	T1

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers)

AMMONIUM NITRATE T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

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List of Chemicals and Materials
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Content Code LA 116A
(Continued)
IDC 004

COMBUSTIBLE WASTE

GROUP 102: EXPLOSIVES (CONTINUED)

NITROCELLULOSE T2

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

AMMONIUM PERCHLORATE T2
BROMINE T2
HYDROGEN PEROXIDE T2
SODIUM HYPOCHLORITE T2
SODIUM NITRATE T1

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES T1
WATER T1

GROUP 107: WATER REACTIVE SUBSTANCES
(Constituents reacted prior to loading in payload containers.)

ALUMINUM CHLORIDE T2
CALCIUM OXIDE T
HYDROBROMIC ACID T2

OTHER ORGANICS

EDTA T2
MOLDS AND CRUCIBLES, GRAPHITE T1

OTHER INORGANICS

ASH T1
FIREBRICK T1

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 116A
(Continued)
IDC 004

COMBUSTIBLE WASTE

OTHER INORGANICS (CONTINUED)

GLASS, LABWARE	T1
GRIT	T1
INSULATION	T1
MOLDS AND CRUCIBLES, CERAMIC	T1
OTHER FILTERS	T1
SALT (Nitrates)	T1
SAND	T1
SLAG	T1
SOOT	T2

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

EMULSIFIERS	T2
ENVIROSTONE	T1
SURFACTANTS	T2
VERMICULITE	T2

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

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Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 117A
IDC 005 LM

METAL WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROBROMIC ACID	T2
HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T2
NITRIC ACID	T2
PHOSPHORIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

PERCHLORIC ACID	T2
-----------------	----

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T2
OXALIC ACID	T2

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T2
BARIUM HYDROXIDE	T2
CALCIUM OXIDE	T2
POTASSIUM HYDROXIDE	T2
SODIUM CARBONATE	T2
SODIUM HYDROXIDE	T2

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 117A
(Continued)
IDC 005 LM

METAL WASTE

GROUP 10: CAUSTICS (CONTINUED)

(Constituents reacted prior to loading in payload containers)

SODIUM HYPOCHLORITE T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE T2

HYDROFLUORIC ACID T2

POTASSIUM FLUORIDE T2

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE T2

GROUP 19: KETONES

ACETONE T2

METHYL ISOBUTYL KETONE T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM M

COPPER T

IRON M

LEAD T

STAINLESS STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BARIUM CHLORIDE T2

BARIUM HYDROXIDE T2

COPPER T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 117A
(Continued)
IDC 005 LM

METAL WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

LEAD T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE T2
GREASE T2
OIL T2
PAPER T2
POLYETHYLENE (Packaging Material) T1
POLYPROPYLENE T2
POLYSTYRENE T2
POLYURETHANE T2
POLYVINYL CHLORIDE (Packaging Material) T2
RESINS T2
RUBBER GLOVES T2
SYNTHETIC RUBBER T2
WAXES T2
WOOD T2

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

AMMONIUM PERCHLORATE T2
BROMINE T2
SODIUM NITRATE T2

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 117A
(Continued)
IDC 005 LM

METAL WASTE

GROUP 106. WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T2
WATER	T2

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers.)

ALUMINUM CHLORIDE	T2
CALCIUM OXIDE	T2
HYDROBROMIC ACID	T2

OTHER INORGANICS

GLASS, LABWARE	D
MOLDS AND CRUCIBLES, CERAMIC	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	T1
VERMICULITE	T1

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 118A
IDC 005 LG

GLASS WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROBROMIC ACID	T2
HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T2
NITRIC ACID	T2
PHOSPHORIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

PERCHLORIC ACID	T2
-----------------	----

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T2
OXALIC ACID	T2

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T2
BARIUM HYDROXIDE	T2
CALCIUM OXIDE	T2
POTASSIUM HYDROXIDE	T2
SODIUM CARBONATE	T2
SODIUM HYDROXIDE	T2

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 118A
(Continued)
IDC 005 LC

GLASS WASTE

GROUP 10: CAUSTICS (CONTINUED)

(Constituents reacted prior to loading in payload containers.)

SODIUM HYPOCHLORITE T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE T2
HYDROFLUORIC ACID T2
POTASSIUM FLUORIDE T2

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE T2

GROUP 19: KETONES

ACETONE T2
METHYL ISOBUTYL KETONE T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM M
COPPER T
IRON M
LEAD T
STAINLESS STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BARIUM CHLORIDE T2
BARIUM HYDROXIDE T2
COPPER T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 118A
(Continued)
IDC 005 LG

GLASS WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

LEAD T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T2
GREASE	T2
OIL	T2
PAPER	T2
POLYETHYLENE (Packaging Material)	T1
POLYPROPYLENE	T2
POLYSTYRENE	T2
POLYURETHANE	T2
POLYVINYL CHLORIDE (Packaging Material)	T2
RESINS	T2
RUBBER GLOVES	T2
SYNTHETIC RUBBER	T2
WAXES	T2
WOOD	T2

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

AMMONIUM PERCHLORATE	T2
BROMINE	T2
SODIUM NITRATE	T2

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 118A
(Continued)
IDC 005 LG

GLASS WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T2
WATER	T2

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers.)

ALUMINUM CHLORIDE	T2
CALCIUM OXIDE	T2
HYDROBROMIC ACID	T2

OTHER INORGANICS

GLASS, LABWARE	D
MOLDS AND CRUCIBLES, CERAMIC	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	T1
VERMICULITE	T1

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 123A
IDC 005 P1

LEADED RUBBER WASTE AND METAL

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T1
HYDROFLUORIC ACID	T1
NITRIC ACID	T1
PHOSPHORIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T1
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GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

OXALIC ACID	T2
-------------	----

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T2
METHANOL	T2
POLYETHYLENE GLYCOL	T2

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

HYDROXYLAMINE	T2
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GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

BERYLLIUM HYDROXIDE	T1
POTASSIUM HYDROXIDE	T1
SODIUM HYDROXIDE	T1

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
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(Continued)
IDC 005 P1

LEADED RUBBER WASTE AND METAL

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T1
HYDROFLUORIC ACID	T1
POTASSIUM FLUORIDE	T2

GROUP 17: HALOGENATED ORGANICS

BROMOFORM	T2
CARBON TETRACHLORIDE	T2
DICHLOROMETHANE	T2

GROUP 19: KETONES

METHYL ETHYL KETONE	T2
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GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM	T2
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GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS, OR SPONGES

MERCURY (VAPOR)	T2
NICKEL	T2
ZIRCONIUM	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	M
COPPER	T
IRON	D

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 123A
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IDC 005 P1

LEADED RUBBER WASTE AND METAL

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC. (CONTINUED)

LEAD	M
STAINLESS STEEL	D
TANTALUM	M
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BERYLLIUM HYDROXIDE	T1
CADMIUM	T1
COPPER	T
LEAD	M
MERCURY	T2
ZIRCONIUM	T2

GROUP 27: NITRO COMPOUNDS

(Constituents reacted prior to loading in payload containers.)

NITROCELLULOSE	T2
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T1
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T1
BENELEX	T1
CARBON, SPENT, ACTIVATED	T1
CELLULOSE	T1
GREASE	T1
OIL	T1

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 123A
(Continued)
IDC 005 P1

LEADED RUBBER WASTE AND METAL

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

PAPER	T1
PLEXIGLAS	T1
POLYETHYLENE	T1
POLYPROPYLENE	T1
POLYSTYRENE	T1
POLYURETHANE	T1
POLYVINYL CHLORIDE	T1
RESINS	T1
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	T1
WAXES	T1
WOOD	T1

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

AMMONIUM NITRATE	T2
NITROCELLULOSE	T2

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

SODIUM NITRATE	T1
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GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T2
WATER	T2

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	T1
-------------------------------	----

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

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IDC 005 P1

LEADED RUBBER WASTE AND METAL

OTHER INORGANICS

ASH	T1
BATTERIES (Alkaline)	T1
FIREBRICK	T
GLASS, LABWARE	T1
GRIT	T2
HEPA FILTERS	T3
INSULATION	T1
MOLDS AND CRUCIBLES, CERAMIC	T1
OTHER FILTERS	T1
SALT (Calcium Fluoride and Calcium Chloride)	T1
SAND	T1
SLAG	T2

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE	T1
SURFACTANTS	T2
VERMICULITE	T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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Content Code LA 124A
IDC 005 P2S

PYROCHEMICAL SALT WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING (Constituents reacted prior to loading in payload containers.)		
HYDROFLUORIC ACID	T1	
GROUP 10: CAUSTICS (Constituents reacted prior to loading in payload containers.)		
BERYLLIUM HYDROXIDE	T1	
CALCIUM OXIDE	D	
POTASSIUM HYDROXIDE	T1	
SODIUM HYDROXIDE	T1	
GROUP 15: FLUORIDES, INORGANIC (Constituents reacted prior to loading in payload containers.)		
CALCIUM FLUORIDE	D	
HYDROFLUORIC ACID	T1	
POTASSIUM FLUORIDE	T2	
GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS (Constituents reacted prior to loading in payload containers.)		
CALCIUM	T	
GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS, OR SPONGES		
MERCURY (VAPOR)	T2	
NICKEL	T2	
ZIRCONIUM	T2	
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.		
ALUMINUM	T1	

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 124A
(Continued)
IDC 005 P25

PYROCHEMICAL SALT WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC. (CONTINUED)

COPPER	T
IRON	M
LEAD	M
STAINLESS STEEL	T1
TANTALUM	T
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BERYLLIUM	T2
BERYLLIUM HYDROXIDE	T2
CADMIUM	T2
COPPER	T
LEAD	M
MERCURY	T2
ZIRCONIUM	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T2
BENELEX	T2
PLEXIGLAS	T2
POLYETHYLENE (Packaging Material)	T2
POLYPROPYLENE	T2
POLYVINYL CHLORIDE (Packaging Material)	T2

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

SODIUM NITRATE	T2
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D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
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(Continued)
IDC 005 P2S

PYROCHEMICAL SALT WASTE

OTHER INORGANICS

MOLDS AND CRUCIBLES, CERAMIC	D
SALT (Calcium Fluoride and Calcium Chloride)	D
SALT (Sodium Chloride and Potassium Chloride)	D
SALT (Magnesium Chloride)	M

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

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Content Code LA 125A
IDC 001

MIXED METAL SCRAP AND INCIDENTAL COMBUSTIBLES

GROUP 4: ALCOHOLS AND GLYCOLS

POLYETHYLENE GLYCOL T2

GROUP 5: ALDEHYDES

FORMALDEHYDE T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	M
COPPER	M
IRON	M
LEAD	D
STAINLESS STEEL	D
TANTALUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

CADMIUM	T
COPPER	M
LEAD	D
MERCURY	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE	T
BENELEX (Polymethyl methacrylate)	M
CARBON, SPENT, ACTIVATED	T
CELLULOSE	T
GREASE	T
OIL	T
PAPER	T
PLEXIGLAS (Polymethyl methacrylate)	M
POLYETHYLENE	M

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 125A
(Continued)
IDC 001

MIXED METAL SCRAP AND INCIDENTAL COMBUSTIBLES

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

POLYPROPYLENE	T
POLYSTYRENE	M
POLYURETHANE	M
POLYVINYL CHLORIDE	M
RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	M
WAXES	T
WOOD	D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T2
WATER	T2

OTHER INORGANICS

ASH (Burned gaskets, etc.)	T2
BATTERIES (Carbon/Zinc and Alkaline)	T2
FIREBRICK	T
GLASS, LABWARE (Glove Box Windows)	M
HEPA FILTERS	T
INSULATION	T
OTHER FILTERS (Glass fiber, furnace)	T
SLAG (Dross from plasma arc cutting)	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	M
ENVIROSTONE	M
OIL-DRI	T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rev. 2, June 1989

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 125A
(Continued)
IDC 001

MIXED METAL SCRAP AND INCIDENTAL COMBUSTIBLES

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS (CONTINUED)

PORTLAND CEMENT (Hydrated)	T
VERMICULITE	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 126A
IDC 006

SOLIDIFIED ORGANIC PROCESS SOLIDS

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T2
NITRIC ACID	T2
PHOSPHORIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T2
PERCHLORIC ACID	T2

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

OXALIC ACID	T2
-------------	----

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T1
METHANOL	T2

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

HYDROXYLAMINE	T2
---------------	----

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

CALCIUM OXIDE	T1
POTASSIUM HYDROXIDE	T2
SODIUM HYDROXIDE	T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 126A
(Continued)
IDC 006

SOLIDIFIED ORGANIC PROCESS SOLIDS

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T1
HYDROFLUORIC ACID	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
BROMOFORM	T2
CARBON TETRACHLORIDE	T2
DICHLOROETHANE	T2
TRICHLOROETHYLENE	T

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM	T
---------	---

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

IRON	T1
STAINLESS STEEL	T1
TANTALUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ARSENIC	T2
BERYLLIUM	T2
CADMIUM	T2
LEAD	T1
MERCURY	T2

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 126A
(Continued)
IDC 006

SOLIDIFIED ORGANIC PROCESS SOLIDS

GROUP 27: NITRO COMPOUNDS
(Constituents reacted prior to loading in payload containers.)

NITROCELLULOSE	T2
UREA NITRATE	T2

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

OILS (C6 TO C20)	M
------------------	---

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	M
TRIOCTYL PHOSPHINE OXIDE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	T1
OIL	M
POLYETHYLENE	T1
POLYPROPYLENE (Ful-Flo Filters)	T
POLYVINYL CHLORIDE	T1
RESINS	M
RUBBER GLOVES, LEADED	T1
SYNTHETIC RUBBER	T2
WOOD	T2

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

AMMONIUM NITRATE	T
NITROCELLULOSE	T2

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 126A
(Continued)
IDC 006

SOLIDIFIED ORGANIC PROCESS SOLIDS

GROUP 104: OXIDIZING AGENTS, STRONG	
(Constituents reacted prior to loading in payload containers)	
HYDROGEN PEROXIDE	T2
OTHER NITRATE SALTS	T
SODIUM NITRATE	M
GROUP 106: WATER AND MIXTURES CONTAINING WATER	
AQUEOUS SOLUTIONS AND MIXTURES	T1
WATER	T1
GROUP 107: WATER REACTIVE SUBSTANCES	
(Constituents reacted prior to loading in payload containers.)	
CALCIUM OXIDE	T1
OTHER ORGANICS	
MOLDS AND CRUCIBLES, GRAPHITE	T
OTHER INORGANICS	
ASH	M
FIREBRICK	T1
GLASS, LABWARE	T
GRIT	T1
HEPA FILTERS	T
INSULATION	T2
MOLDS AND CRUCIBLES, CERAMIC	T
OTHER FILTERS	T1
SALT (Calcium Fluoride and Calcium Chloride)	T1
SAND	T1
SLAG	T2

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Los Alamos National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LA 126A
(Continued)
IDC 006

SOLIDIFIED ORGANIC PROCESS SOLIDS

OTHER INORGANICS (CONTINUED)

SOOT	T3
------	----

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE	D
OXALATE SALTS	M
SURFACTANTS	T
VERMICULITE	T1

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 111A
IDC 002

SOLIDIFIED AQUEOUS WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	M
HYDROFLUORIC ACID	T
NITRIC ACID	M
PHOSPHORIC ACID	T
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	M
-------------	---

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T
CITRIC ACID	T
LACTIC ACID	T
OXALIC ACID	T
PICRIC ACID (<0.01%)	T

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T
ISOPROPANOL	T
METHANOL	T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	M
SODIUM HYDROXIDE	T

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 111A
(Continued)
IDC 002

SOLIDIFIED AQUEOUS WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE	T
HYDROFLUORIC ACID	T

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE	T
CHLOROFORM	T
TRICHLOROETHYLENE	T

GROUP 19: KETONES

ACETONE	T
METHYL ETHYL KETONE	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
CHROMIUM	T
LEAD	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL	T
-----	---

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

PICRIC ACID (<0.01%)	T
----------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 111A
(Continued)
IDC 002

SOLIDIFIED AQUEOUS WASTE

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE

T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT (Hydrated)

D

EMULSIFIERS

T

ENVIROSTONE

D

SODIUM SILICATE

T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 116A
IDC 001

COMBUSTIBLE WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING

(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T
HYDROFLUORIC ACID	T
NITRIC ACID	T
PHOSPHORIC ACID	T
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING

(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T
-------------	---

GROUP 3: ACIDS, ORGANIC

(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T
CITRIC ACID	T
LACTIC ACID	T
OXALIC ACID	T
PICRIC ACID (<0.01%)	T

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T
ISOPROPANOL	T
METHANOL	T

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	T
SODIUM CARBONATE	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 116A
(Continued)
IDC 001

COMBUSTIBLE WASTE

GROUP 10: CAUSTICS (CONTINUED)

(Constituents reacted prior to loading in payload containers.)

SODIUM HYDROXIDE T

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE T

CALCIUM FLUORIDE T

HYDROFLUORIC ACID T

GROUP 17: HALOGENATED ORGANICS

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T

CARBON TETRACHLORIDE T

CHLOROFORM T

TRICHLOROETHYLENE T

GROUP 19: KETONES

ACETONE T

METHYL ETHYL KETONE T

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM T

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

ALUMINUM T

MAGNESIUM T

URANIUM T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 116A

(Continued)

IDC 001

COMBUSTIBLE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES (CONTINUED)

ZIRCONIUM T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM T
COPPER T
IRON T
LEAD T
NICKEL T
STAINLESS STEEL M
TANTALUM T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM T
CHROMIUM T
COPPER T
LEAD T
NICKEL T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE T
CELLULOSE T
GREASE T
OIL T
PAPER M
POLYETHYLENE M
POLYPROPYLENE T
POLYSTYRENE T
POLYVINYL CHLORIDE T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 116A
(Continued)
IDC 001

COMBUSTIBLE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	T

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

PICRIC ACID (<0.01%)	T
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GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T
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OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	M
-------------------------------	---

OTHER INORGANICS

FIREBRICK	T
GLASS, LABWARE	M
INSULATION (Furnace)	T
MOLDS AND CRUCIBLES, CERAMIC	T
OTHER FILTERS	T
SALT (Calcium Fluoride and Calcium Chloride)	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT	T
OIL-DRI	T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Lawrence Livermore National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code LL 124A
IDC 004

PYROCHEMICAL SALT WASTE

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)
CALCIUM OXIDE M

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)
CALCIUM FLUORIDE D

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS
(Constituents reacted prior to loading in payload containers.)
CALCIUM T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.
STAINLESS STEEL M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS
POLYETHYLENE (Packaging Material) M
POLYVINYL CHLORIDE (Packaging Material) M

OTHER INORGANICS
SALT D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111A
IDC 836

SOLIDIFIED AQUEOUS WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T1
HYDROFLUORIC ACID	T2
NITRIC ACID	T1
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYPOCHLOROUS ACID	T2
-------------------	----

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

LACTIC ACID	T2
OXALIC ACID	T2

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T1
METHANOL	T1
PROPANOL	T1

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T1
SODIUM CARBONATE	T
SODIUM HYDROXIDE	T
SODIUM HYPOCHLORITE	T1

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111A
(Continued)
IDC 836

SOLIDIFIED AQUEOUS WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

HYDROFLUORIC ACID T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE T2

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T1

TRICHLOROETHYLENE T1

GROUP 19: KETONES

ACETONE T1

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM T2

MAGNESIUM T2

POTASSIUM T2

SODIUM T2

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

ALUMINUM T2

COBALT T2

MAGNESIUM T2

MANGANESE T2

MERCURY (VAPOR) T2

NICKEL T2

THORIUM M

TITANIUM T2

URANIUM T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111A
(Continued)
IDC 836

SOLIDIFIED AQUEOUS WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES (CONTINUED)

ZIRCONIUM

T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T2
CADMIUM	T2
CARBON	M
CHROMIUM	T2
COBALT	T2
COPPER	T2
IRON	T
LEAD	T1
MANGANESE	T
SELENIUM	T2
SILICON	T1
SILVER	T2
THORIUM	M
TIN	T
TITANIUM	T2
URANIUM	T
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
CADMIUM	T2
CHROMIUM	T2
COBALT	T2
COPPER	T2
LEAD	T1
MANGANESE	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111A
(Continued)
IDC 836

SOLIDIFIED AQUEOUS WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

MERCURY	T
NICKEL	T
SELENIUM	T2
STRONTIUM	T2
THORIUM	M
TITANIUM	T2
ZIRCONIUM	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CARBON, SPENT, ACTIVATED	T
OIL	T
POLYBUTADIENE	T2
POLYSTYRENE	T1

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T2
SODIUM NITRATE	T

GROUP 105: REDUCING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

PHOSPHOROUS	T
SODIUM	T2

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
WATER	T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111A
(Continued)
IDC 836

SOLIDIFIED AQUEOUS WASTE

GROUP 107: WATER REACTIVE SUBSTANCES
(Constituents reacted prior to loading in payload containers.)

PHOSPHOROUS	T
SODIUM	T2

OTHER INORGANICS

ASH	M
CALCIUM CHLORIDE	M
FERRIC HYDROXIDE	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ASH	M
CEMENT (Hydrated)	D
FLORCO	M
SLUDGE	D
SURFACTANTS	T
VERMICULITE	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 1118
IDC 842

CONTAMINATED SOIL

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS
(Constituents reacted prior to loading in payload containers.)

CALCIUM T2

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

THORIUM M
URANIUM T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

CADMIUM T2
CHROMIUM T2
COPPER T2
IRON T
LEAD T1
MERCURY T2
SELENIUM T2
SILVER T2
THORIUM T
URANIUM T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

CADMIUM T2
CHROMIUM T2
COPPER T2
LEAD T1
MERCURY T2
SELENIUM T2

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 111B
(Continued)
IDC 842

CONTAMINATED SOIL

GROUP 101 COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	T
WOOD	T

GROUP 106 WATER AND MIXTURES CONTAINING WATER

WATER	T
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OTHER INORGANICS

SAND	M
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

FLORCO	M
--------	---

-
- Dominant Component (>10 % by wt.)
 - Minor Component (1 - 10 % by wt.)
 - Trace Component (<1 % by wt.)
 - Trace Component (<0.1 % by wt.)
 - Trace Component (low PPM range)
 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 116A
IDC 827

COMBUSTIBLE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

THORIUM	T
---------	---

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LEAD	T1
MERCURY	T2
THORIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
MERCURY	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	M
GREASE	T
OIL	T
PAPER	D
POLYBUTADIENE	T
POLYETHYLENE	D
POLYPROPYLENE	M
POLYSTYRENE	M
POLYURETHANE	T
POLYVINYL CHLORIDE	D
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	M
WOOD	M

D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (Low PPM range)
 T3 = Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 116A
(Continued)
IDC 827

COMBUSTIBLE WASTE

GROUP 106. WATER AND MIXTURES CONTAINING WATER

WATER

T1

OTHER INORGANICS

HEPA FILTERS

T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

FLORCO

M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 117A
IDC 824

NON-COMBUSTIBLE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

ALUMINUM	T1
NICKEL	T1
THORIUM	T
URANIUM	T
ZIRCONIUM	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
BARIUM	T2
CADMIUM	T2
COPPER	T
IRON	D
LEAD	T
SELENIUM	T2
SILVER	T2
STAINLESS STEEL	D
THORIUM	T
URANIUM	T
ZIRCONIUM	T2

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BARIUM	T2
CADMIUM	T2
CHROMIUM	T
COPPER	T
LEAD	T
MERCURY	T1
SELENIUM	T2
ZIRCONIUM	T2

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Mound Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code MD 117A
(Continued)
IDC 824

NON-COMBUSTIBLE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BENELEX	T
PLEXIGLAS	T

OTHER INORGANICS

ASH	T1
GLASS, LABWARE	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	M
----------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 111A, NT 211A
IDCs 002, 292

SOLIDIFIED AQUEOUS WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING

(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	M
HYDROFLUORIC ACID	T
NITRIC ACID	M
PHOSPHORIC ACID	T
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING

(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	M
-------------	---

GROUP 3: ACIDS, ORGANIC

(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T
CITRIC ACID	T
LACTIC ACID	T
OXALIC ACID	T
PICRIC ACID (<0.01%)	T

GROUP 4: ALCOHOLS AND GLYCOLS

ETHANOL	T
ISOPROPANOL	T
METHANOL	T

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	M
SODIUM HYDROXIDE	T

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 111A, NT 211A
(Continued)
IDCs 002, 292

SOLIDIFIED AQUEOUS WASTE

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE	T
HYDROFLUORIC ACID	T

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE	T
CHLOROFORM	T
TRICHLOROETHYLENE	T

GROUP 19: KETONES

ACETONE	T
METHYL ETHYL KETONE	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T
CHROMIUM	T
LEAD	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL	T
-----	---

GROUP 102: EXPLOSIVES
(Constituents reacted prior to loading in payload containers.)

PICRIC ACID (<0.01%)	T
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-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 111A, NT 211A
(Continued)
IDCs 002, 292

SOLIDIFIED AQUEOUS WASTE

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers)

HYDROGEN PEROXIDE T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT (Hydrated)	D
EMULSIFIERS	T
ENVIROSTONE	D
SODIUM SILICATE	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 116A, NT 225A
IDCs 001, 330, 961, 993

COMBUSTIBLE WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING	
(Constituents reacted prior to loading in payload containers)	
HYDROCHLORIC ACID	T
HYDROFLUORIC ACID	T
NITRIC ACID	T
PHOSPHORIC ACID	T
SULFURIC ACID (<70%)	T
GROUP 2: ACIDS, MINERAL, OXIDIZING	
(Constituents reacted prior to loading in payload containers.)	
NITRIC ACID	T
GROUP 3: ACIDS, ORGANIC	
(Constituents reacted prior to loading in payload containers.)	
ACETIC ACID	T
CITRIC ACID	T
LACTIC ACID	T
OXALIC ACID	T
PICRIC ACID (<0.01%)	T
GROUP 4: ALCOHOLS AND GLYCOLS	
ETHANOL	T
ISOPROPANOL	T
METHANOL	T
GROUP 10: CAUSTICS	
(Constituents reacted prior to loading in payload containers.)	
AMMONIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	T
SODIUM CARBONATE	T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 116A, NT 225A
(Continued)
IDCs 001, 330, 961, 993

COMBUSTIBLE WASTE

GROUP 10: CAUSTICS (CONTINUED)

(Constituents reacted prior to loading in payload containers.)

SODIUM HYDROXIDE T

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

AMMONIUM FLUORIDE T
CALCIUM FLUORIDE T
HYDROFLUORIC ACID T

GROUP 17: HALOGENATED ORGANICS

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE T
CARBON TETRACHLORIDE T
CHLOROFORM T
TRICHLOROETHYLENE T

GROUP 19: KETONES

ACETONE T
METHYL ETHYL KETONE T

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS

(Constituents reacted prior to loading in payload containers.)

CALCIUM T

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS,
OR SPONGES

ALUMINUM T
MAGNESIUM T
URANIUM T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 116A, NT 225A
(Continued)
IDCs 001, 330, 961, 993

COMBUSTIBLE WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES (CONTINUED)

ZIRCONIUM

T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM

T

COPPER

T

IRON

T

LEAD

T

NICKEL

T

STAINLESS STEEL

M

TANTALUM

T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM

T

CHROMIUM

T

COPPER

T

LEAD

T

NICKEL

T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

BAKELITE

T

CELLULOSE

T

GREASE

T

OIL

T

PAPER

M

POLYETHYLENE

M

POLYPROPYLENE

T

POLYSTYRENE

T

POLYVINYL CHLORIDE

T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Nevada Test Site
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes NT 116A, NT 225A
(Continued)
IDCs 001, 330, 961, 993

COMBUSTIBLE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T1
SYNTHETIC RUBBER	T

GROUP 102: EXPLOSIVES

(Constituents reacted prior to loading in payload containers.)

PICRIC ACID (<0.01%)	T
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GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T
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OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	M
-------------------------------	---

OTHER INORGANICS

FIREBRICK	T
GLASS, LABWARE	M
INSULATION (Furnace)	T
MOLDS AND CRUCIBLES, CERAMIC	T
OTHER FILTERS	T
SALT (Calcium Fluoride and Calcium Chloride)	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CEMENT	T
OIL-DRI	T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125A
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T
NITRIC ACID	T2
SULFURIC ACID (<70%).	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T
PERCHLORIC ACID	T2

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T2
ALPHA-HYDROXY ISOBUTYRIC ACID	T2
DI(2-ETHYLHEXYL)-PHOSPHORIC ACID	T2
OXALIC ACID	T2

GROUP 4: ALCOHOLS AND GLYCOLS

2-ETHYL-1-HEXANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 6: AMIDES

ACETAMIDE	T2
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-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 123A

(Continued)

No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

ADOGEN-364-NP (TRILAURYLAMINE) T2

GROUP 8: AZO COMPOUNDS, DIAZO COMPOUNDS, AND HYDRAZINES
(Constituents reacted prior to loading in payload containers.)

HYDRAZINE T2

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE T2

LITHIUM HYDROXIDE T2

POTASSIUM HYDROXIDE T1

SODIUM HYDROXIDE T1

GROUP 13: ESTERS

AMYL ACETATE T2

GROUP 16: HYDROCARBONS, AROMATIC

DIETHYL BENZENE (DEB) T2

DIISOPROPYLBENZENE T2

TOLUENE T2

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE T2

GROUP 19: KETONES

2,5-DI-TERT-BUTYL-HYDROQUINONE (DBHQ) T2

ACETONE T2

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125A
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 19: KETONES (CONTINUED)

THENOYLFLUOROACETONE (TFA) T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
COPPER	T
GOLD	T
HASTELLOY-C	T
IRON	M
NICKEL	T
PLATINUM	T1
STAINLESS STEEL	M
TANTALUM	T1
TUNGSTEN	T
URANIUM	T
ZINC	T
ZIRCALLOY	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
NICKEL	T
ZINC	T

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

N-DODECANE	T1
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T1
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-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125A
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	T
CORK	T
COTTON	T
DEODERIZED MINERAL SPIRITS	T
FUL-FLO FILTERS (POLYPROPYLENE)	T
N-PARAFFIN HYDROCARBONS (NPH)	T
PAPER	D
POLYETHYLENE	D
POLYPROPYLENE	T
POLYSTYRENE	T
POLYURETHANE	T
POLYVINYL CHLORIDE	T
RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	T
TEFLON	T
VACUUM GREASE	T
WOOD	T

GROUP 104: OXIDIZING AGENTS, STRONG
(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T1
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GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
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OTHER ORGANICS

EDTA	T1
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-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rev. 2, June 1989

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125A
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

OTHER INORGANICS

GLASS, LABWARE
HEPA FILTERS (Old)

D
T

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125B
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

HYDROCHLORIC ACID	T2
HYDROFLUORIC ACID	T
NITRIC ACID	T2
SULFURIC ACID (<70%)	T2

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID	T
PERCHLORIC ACID	T2

GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T2
ALPHA-HYDROXY ISOBUTYRIC ACID	T2
DI(2-ETHYLHEXYL)-PHOSPHORIC ACID	T2
OXALIC ACID	T2

GROUP 4: ALCOHOLS AND GLYCOLS

2-ETHYL-1-HEXANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 6: AMIDES

ACETAMIDE	T2
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-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125B
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 7: AMINES, ALIPHATIC AND AROMATIC

ADOGEN-364-HP (TRILAURYLAMINE) T2

GROUP 8: AZO COMPOUNDS, DIAZO COMPOUNDS, AND HYDRAZINES
(Constituents reacted prior to loading in payload containers.)

HYDRAZINE T2

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE T2
LITHIUM HYDROXIDE T2
POTASSIUM HYDROXIDE T1
SODIUM HYDROXIDE T1

GROUP 13: ESTERS

AMYL ACETATE T2

GROUP 16: HYDROCARBONS, AROMATIC

DIETHYL BENZENE (DEB) T2
DIISOPROPYLBENZENE T2
TOLUENE T2

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE T2

GROUP 19: KETONES

2-5-DI-TERT-BUTYL-HYDROQUINONE (DBHQ) T2
ACETONE T2

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T1 - Trace Component (<1 % by wt.)
T2 - Trace Component (<0.1 % by wt.)
T3 - Trace Component (low PPM range)
T4 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125B
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 19: KETONES (CONTINUED)

THENOYLFLUOROACETONE (TFA) T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
COPPER	T
GOLD	T
HASTELLOY-C	T
IRON	D
NICKEL	T
PLATINUM	T1
STAINLESS STEEL	D
TANTALUM	T1
TUNGSTEN	T
URANIUM	T
ZINC	T
ZIRCALLOY	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER	T
NICKEL	T
ZINC	T

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

N-DODECANE T1

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T1

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125B
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CELLULOSE	T
CORK	T
COTTON	T
DEODERIZED MINERAL SPIRITS	T
FUL-FLO FILTERS (POLYPROPYLENE)	T
N-PARAFFIN HYDROCARBONS (NPH)	T
PAPER	M
POLYETHYLENE	M
POLYPROPYLENE	T
POLYSTYRENE	T
POLYURETHANE	T
POLYVINYL CHLORIDE	T
RESINS	T
RUBBER GLOVES	M
RUBBER GLOVES, LEADED	T
SYNTHETIC RUBBER	T
TEFLON	T
VACUUM GREASE	T
WOOD	T

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

HYDROGEN PEROXIDE	T1
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GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

OTHER ORGANICS

EDTA	T1
------	----

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Oak Ridge National Laboratory
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code OR 125B
(Continued)
No corresponding IDCs

MIXED PAPER, METAL AND GLASS

OTHER INORGANICS

GLASS, LABWARE
HEPA FILTERS (Old)

M
T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 111A
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T3
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 111A

(Continued)

IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES

SLUDGE (Fixed in matrix)

WATER

T
D
T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)

T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE

PORTLAND CEMENT (Hydrated)

D
D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 111B
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T3
--------------------	----

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 111B
(Continued)
IDCs 800, 803, 807

SOLIDIFIED AQUEOUS WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
--------------------------------------	---

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE	D
PORTLAND CEMENT (Hydrated)	D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 112A

IDCs 801, 808

SOLIDIFIED ORGANICS

GROUP 4: ALCOHOLS AND GLYCOLS

POLYETHYLENE GLYCOL M

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE M (808)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE D (801)

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE M (801)

CARBON TETRACHLORIDE M (801)

CHLOROFORM D (808)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL D (801)

POLYETHYLENE (Packaging Material) T

POLYVINYL CHLORIDE (Packaging Material) T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE (CaSO₄) D

POTASSIUM SULFATE M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 113A
IDC 802

SOLIDIFIED LABORATORY WASTE

GROUP 3: ACIDS, ORGANIC

(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T
ASCORBIC ACID	T
CITRIC ACID	T
OXALIC ACID	T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T1
ETHANOL	T1
ISOPROPANOL	T1
METHANOL	T1

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T1
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GROUP 19: KETONES

THENOYL TRIFLUOROACETONE (TTA)	T
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T
TRIOCTYL PHOSPHINE OXIDE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 113A
(Continued)
IDC 802

SOLIDIFIED LABORATORY WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES (Fixed in matrix) M
WATER T

OTHER ORGANICS

1,10-PHENANTHROLINE	T3
ALPHA-HYDROXYQUINOLINE	T
EDTA	T
SODIUM ACETATE	T
SODIUM CITRATE	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

MAGNESIA CEMENT (Hydrated)	D
PORTLAND CEMENT (Hydrated)	D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 114A
IDC 806

CEMENTED INORGANIC PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
--------	----

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

OTHER INORGANICS

FIREBRICK	D
GRIT	D
SAND	D
SLAG	D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 114A
(Continued)
IDC 806

CEMENTED INORGANIC PROCESS SOLIDS

OTHER INORGANICS (CONTINUED)

SOOT

D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)

D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 114B
IDC 806

CEMENTED INORGANIC PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
--------	----

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 114B
(Continued)
IDC 806

CEMENTED INORGANIC PROCESS SOLIDS

OTHER INORGANICS

CLAY (BENTONITE)	D
FIREBRICK	D
GRIT	D
SAND	D
SLAG	D
SODIUM CHLORIDE	D
SOOT	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
----------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 115A
IDCs 300, 303, 312

GRAPHITE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	D
-------------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 115B
IDCs 300, 303, 312

GRAPHITE WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL

M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)

T

POLYVINYL CHLORIDE (Packaging Material)

T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE

D

OTHER INORGANICS

CLAY (BENTONITE)

D

SODIUM CHLORIDE

D

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 116A
IDCs 831, 832, 833

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	
SODIUM FLUORIDE	T
	T

GROUP 17: HALOGENATED ORGANICS

1.1.1-TRICHLOROETHANE	
1.1.2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
METHYLENE CHLORIDE	T1
	T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D
	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	
	M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 116B
IDCs 831, 832, 833

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 17: HALOGENATED ORGANICS

1.1.1-TRICHLOROETHANE	T
1.1.2-TRICHLORO-1.2.2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	D
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 117A
IDCs 320, 321, 480, 488, 854

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T (480,488)
SODIUM FLUORIDE	T (480,488)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2 (480)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T2 (480)
CARBON TETRACHLORIDE	T2 (480)
METHYLENE CHLORIDE	T1 (480)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D (480)
COPPER	D (480)
IRON	D (480)
LEAD	D (320,321,488)
STAINLESS STEEL	D (480,488)
TANTALUM	D (320)
TUNGSTEN	D (320)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	D (854)
BERYLLIUM	T2 (480)
COPPER	D (480)
LEAD	D (320,321,488)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 117A
(Continued)
IDCs 320, 321, 480, 488, 854

METAL WASTE

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 117B
IDCs 320, 321, 480, 488, 854

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T (480,488)
SODIUM FLUORIDE	T (480,488)

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2 (480)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T2 (480)
CARBON TETRACHLORIDE	T2 (480)
METHYLENE CHLORIDE	T1 (480)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D (480)
COPPER	D (480)
IRON	D (480)
LEAD	D (320,321,488)
LOW CARBON STEEL	M
STAINLESS STEEL	D (480,488)
TANTALUM	D (320)
TUNGSTEN	D (320)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	D (854)
BERYLLIUM	T2 (480)
COPPER	D (480)
LEAD	D (320,321,488)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 117B
(Continued)
IDCs 320, 321, 480, 488, 854

METAL WASTE

OTHER INORGANICS

CLAY (BENTONITE)
SODIUM CHLORIDE

D
D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 118A
IDCs 368, 370, 440, 442, 443, 444

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3 (443)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3 (443)
CARBON TETRACHLORIDE	T3 (443)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	T (444)
LEAD	D (444)
STEEL	T (444)
TUNGSTEN	T (444)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D (444)
MERCURY	T2 (444)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

GLASS, LABWARE	D (440, 444)
GLASS, RASCHIG RINGS	D (442, 443)
MOLDS AND CRUCIBLES, CERAMIC	D (368, 370)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
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D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 118B
IDCs 368, 370, 440, 442, 443, 444

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3 (443)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3 (443)
CARBON TETRACHLORIDE	T3 (443)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T (444)
LEAD	D (444)
LOW CARBON STEEL	M
STEEL	T (444)
TUNGSTEN	T (444)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D (444)
MERCURY	T2 (444)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
GLASS, LABWARE	D (440, 444)
GLASS, RASCHIG RINGS	D (442, 443)
MOLDS AND CRUCIBLES, CERAMIC	D (368, 370)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 119A
IDCs 335, 338, 342, 376, 490, 491

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1 (335,338,376,490,491)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1 (335,338,376,490,491)
CARBON TETRACHLORIDE	T1 (335,338,376,490,491)
METHYLENE CHLORIDE	T2 (335,338,376,490,491)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D (335,338,342,376,490)
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYPROPYLENE (Ful-Flo Filters)	D (376)
POLYVINYL CHLORIDE (Packaging Material)	M
WOOD	D (335,342,376,490)
WOOD	M (491)

OTHER INORGANICS

HEPA FILTERS (or filter media)	D (335,338,342,376,490)
OTHER FILTERS	D (376)
PLENUM PREFILTERS (FIBERGLASS)	D (491)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M (376)
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D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 119B
IDCs 335, 338, 342, 376, 490, 491

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1.1.1-TRICHLOROETHANE	T1 (335,338,376,490,491)
1.1.2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1 (335,338,376,490,491)
CARBON TETRACHLORIDE	T1 (335,338,376,490,491)
METHYLENE CHLORIDE	T2 (335,338,376,490,491)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D (335,338,342,376,490)
LOW CARBON STEEL	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYPROPYLENE (Ful-Flo Filters)	D (376)
POLYVINYL CHLORIDE (Packaging Material)	M
WOOD	D (335,342,376,490)
WOOD	M (491)

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D (335,338,342,376,490)
OTHER FILTERS	D (376)
PLENUM PREFILTERS (FIBERGLASS)	D (491)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M (376)
----------------------------	---------

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 121A
IDCs 302, 374

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (374)
METHYLENE CHLORIDE	T1 (374)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D (374)
PHENOLIC RESINS	T (302)
POLYETHYLENE (Packaging Material)	T
POLYMETHYL METHACRYLATE	D (302)
POLYVINYL CHLORIDE (Packaging Material)	T
WOOD	D (302)

OTHER INORGANICS

SAND	D (374)
SOIL	D (374)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D (374)
OIL-DRI	M (374)

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 121B
IDCs 302, 374

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (374)
METHYLENE CHLORIDE	T1 (374)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS
DROPS, ETC.

LOW CARBON STEEL	M
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D (374)
PHENOLIC RESINS	T (302)
POLYETHYLENE (Packaging Material)	T
POLYMETHYL METHACRYLATE	D (302)
POLYVINYL CHLORIDE (Packaging Material)	T
WOOD	D (302)

OTHER INORGANICS

CLAY (BENTONITE)	D
SAND	D (374)
SODIUM CHLORIDE	D
SOIL	D (374)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D (374)
OIL-DRI	M (374)

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 122A
IDCs 371, 375, 377, 379, 438

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (375)
CARBON TETRACHLORIDE	T1 (375)
METHYLENE CHLORIDE	T1 (375)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

FIREBRICK	D (371, 377, 379)
INSULATION	D (438)

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	D (375)
OIL-DRI	M (371, 377, 379, 438)

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 122B
IDCs 371, 375, 377, 379, 438

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T (375)
CARBON TETRACHLORIDE	T1 (375)
METHYLENE CHLORIDE	T1 (375)

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
FIREBRICK	D (371, 377, 379)
INSULATION	D (438)
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	D (375)
OIL-DRI	M (371, 377, 379, 438)

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 123A
IDC 339

LEADED RUBBER

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves)

D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE

T

POLYVINYL CHLORIDE

T

RUBBER GLOVES, LEADED

D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 123B
IDC 339

LEADED RUBBER

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves) D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T

POLYVINYL CHLORIDE T

RUBBER GLOVES, LEADED D

OTHER INORGANICS

CLAY (BENTONITE) D

SODIUM CHLORIDE D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 124A
IDCs 411, 429, 433, 454

PYROCHEMICAL SALT WASTE

GROUP 10: CAUSTICS
(Constituents dispersed in chloride salts.)

CALCIUM OXIDE

M (454)

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

MAGNESIUM OXIDE

T1 (411, 429, 433)

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)

T

POLYVINYL CHLORIDE (Packaging Material)

T

GROUP 107: WATER REACTIVE SUBSTANCES
(Constituents dispersed in chloride salts.)

CALCIUM OXIDE

M (454)

OTHER INORGANICS

CALCIUM CHLORIDE

D (433, 454)

CESIUM CHLORIDE

D (433)

CESIUM CHLORIDE

M (454)

MAGNESIUM CHLORIDE

D

METAL CANS (for salt)

M

POTASSIUM CHLORIDE

D (411, 429, 433)

SODIUM CHLORIDE

D (411, 429, 433)

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Rev. 2, June 1989

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 126A
IDC 809

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex)	D
POLYETHYLENE	T
POLYVINYL CHLORIDE	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
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-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 126B
IDC 809

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex) D
POLYETHYLENE T
POLYVINYL CHLORIDE T

OTHER INORGANICS

CLAY (BENTONITE) D
SODIUM CHLORIDE D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated) D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A
IDCs 302, 335, 338, 339, 342, 374, 376, 490, 492, 800,
803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
LOW CARBON STEEL	M

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A

(Continued)

IDCs 302, 335, 338, 339, 342, 374, 376, 490, 491, 500,
803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	D

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHICATES

TRIBUTYL PHOSPHATE	T3
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D
PAPER	D
PHENOLIC RESINS	T
POLYETHYLENE	D
POLYMETHYL METHACRYLATE	D
POLYPROPYLENE (Ful-Flo Filters)	D
POLYVINYL CHLORIDE	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	D
WOOD	D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
--------------------------------------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A
(Continued)

IDCs 302, 335, 338, 339, 342, 374, 376, 490, 491, 800,
803, 807, 831, 832, 833

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D
OTHER FILTERS	D
PLENUM PREFILTERS (FIBERGLASS)	D
SAND	D
SODIUM CHLORIDE	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D
DIATOMITE	D
OIL-DRI	M
PORTLAND CEMENT (Hydrated)	D

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Richland Hanford
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RH 112A
IDC 004

SOLIDIFIED ORGANICS

GROUP 16: HYDROCARBONS, AROMATIC

TRIMETHYLBENZENE	M
XYLENE	D

GROUP 17: HALOGENATED ORGANICS

CARBON TETRACHLORIDE	D
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	D
TRIOCTYL PHOSPHINE OXIDE	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

N-PARAFFIN HYDROCARBONS (NPH)	D
POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONVED PADS	D
NON-IONIC DETERGENT	D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Richland Hanford
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RH 114A
IDC 003

SOLIDIFIED INORGANIC PROCESS SOLIDS

GROUP 15: FLUORIDES, INORGANIC (Constituents reacted prior to loading in payload containers.)		
SODIUM FLUORIDE		T2
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.		
IRON (Cemented Sludges)		T2
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS		
POLYETHYLENE (Packaging Material)		D
POLYVINYL CHLORIDE (Packaging Material)		D
GROUP 104: OXIDIZING AGENTS, STRONG (Constituents reacted prior to loading in payload containers.)		
ALUMINUM NITRATE NANOHYDRATE		T
SODIUM NITRATE		T
GROUP 106: WATER AND MIXTURES CONTAINING WATER		
AQUEOUS SOLUTIONS AND MIXTURES		T
SLUDGE		T
OTHER SOLIDIFICATION MATERIAL/ABSORBENTS		
CONCRETE (Cemented Sludges)		M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Richland Hanford
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RH 123A
No corresponding IDCs

LEADED RUBBER

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

NITRIC ACID T1

GROUP 23: METAL, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LEAD (Encapsuled) D

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD D

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE M
POLYVINYL CHLORIDE M
RUBBER GLOVES, LEADED D

OTHER INORGANICS

LEADED GLASS M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Richland Hanford
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RH 125A
IDCs 001, 002

MIXED PAPER, METAL AND GLASS

GROUP 10: CAUSTICS

(Constituents reacted prior to loading in payload containers.)

SODIUM HYDROXIDE T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

CARBON STEEL D
COPPER (Wire) T2
LEAD (Encapsuled) M
STAINLESS STEEL D

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

COPPER T2
LEAD M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CORK T1
LEATHER T1
PAPER T1
PLEXIGLAS T
POLYETHYLENE D
POLYPROPYLENE T1
POLYVINYL CHLORIDE D
RAGS/CLOTH M
RUBBER GLOVES M
RUBBER GLOVES, LEADED M
SYNTHETIC RUBBER T1
WOOD T1

-
- D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Richland Hanford
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RH 125A
(Continued)
IDCs 001, 002

MIXED PAPER, METAL AND GLASS

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

ALUMINUM NITRATE NANOHYDRATE

T

OTHER INORGANICS

GLASS, LABWARE

D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMACEOUS EARTH

M

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers.)

BORIC ACID	T
CHLOROSULFONIC ACID (Reacted)	T
FLUOROBORIC ACID	T
FLUOSILICIC ACID	T
HYDROBROMIC ACID	T
HYDROCHLORIC ACID	T
HYDROFLUORIC ACID	T
HYDROIODIC ACID	T
NITRIC ACID	T
PHOSPHORIC ACID	T
SULFONIC ACID	T
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers.)

CHROMIC ACID	T
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GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers.)

ACETIC ACID	T1
ASCORBIC ACID	T
FORMIC ACID	T
OXALIC ACID	T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T
ETHANOL	T
GLYCERIN	T
ISOPROPANOL	T
METHANOL	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - 1 - Trace Component (<1 % by wt.)
 - 1.1 - Trace Component (<0.1 % by wt.)
 - 1.2 - Trace Component (low PPM range)
 - 1.3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 8: AZO COMPOUNDS, DIAZO COMPOUNDS, AND HYDRAZINES
(Constituents reacted prior to loading in payload containers.)

HYDRAZINE	T
HYDRAZINE MONONITRATE	T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T
BARIUM HYDROXIDE	T
BARIUM OXIDE	T
BERYLLIUM HYDROXIDE	T
CALCIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	T
SODIUM CARBONATE	T
SODIUM HYDROXIDE	T
SODIUM HYPOCHLORITE	T

GROUP 14: ETHERS

ETHYL ETHER	T
-------------	---

GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)

ALUMINUM FLUORIDE	T
AMMONIUM BIFLUORIDE	T
AMMONIUM FLUORIDE	T
BARIUM FLUORIDE	T
CALCIUM FLUORIDE	T
FLUOSILICIC ACID	T
HYDROFLUORIC ACID	T
MAGNESIUM FLUORIDE	T

D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 15: FLUORIDES, INORGANIC (CONTINUED)		
(Constituents reacted prior to loading in payload containers.)		
POTASSIUM FLUORIDE		T
SODIUM FLUORIDE		T
GROUP 16: HYDROCARBONS, AROMATIC		
TOLUENE		T
XYLENE		T
GROUP 17: HALOGENATED ORGANICS		
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		T
CARBON TETRACHLORIDE		T
CHLOROFORM		T
GROUP 19: KETONES		
ACETONE		T
METHYL ACETONE		T
METHYL ISOBUTYL KETONE		T
GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS		
(Constituents reacted prior to loading in payload containers.)		
CALCIUM		T
POTASSIUM		T
SODIUM		T
GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS, OR SPONGES		
ALUMINUM		T
MAGNESIUM		T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A

(Continued)

IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES (CONTINUED)

MERCURY (VAPOR)	T
NICKEL	T
THORIUM	T
TITANIUM	T
URANIUM	T
ZIRCONIUM	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
COPPER	M
GOLD	T
GRAPHITE	M
IRON	D
LEAD	D
NICKEL	T
PLATINUM	M
SILVER	T
STAINLESS STEEL	D
TANTALUM	T
THORIUM	T
TITANIUM	T
TUNGSTEN	M
URANIUM	T
ZINC	T
ZIRCONIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ACRYLEAD	T
BARIUM	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

BARIUM CHLORIDE
BARIUM FLUORIDE
BARIUM NITRATE
BARIUM OXIDE
BARIUM SULFATE
BERYLLIUM
BORON CARBIDE
CADMIUM
CHROMIUM
COPPER
LEAD
LEAD NITRATE
LEAD OXIDE
MAGNESIUM OXIDE
MERCURIC NITRATE
MERCURY
NICKEL NITRATE
POTASSIUM DICHROMATE
SILVER NITRATE
SODIUM CHROMATE
SODIUM DICHROMATE
SODIUM TETRABORATE
STRONTIUM NITRATE
TITANIUM
URANIUM SULFIDE
URANYL NITRATE
ZINC
ZINC NITRATE
ZIRCONIUM

H H H H X I I I O O H X O O H H I I I I I I I I I I I

- 0 - Dominant Component (>10 % by wt.)
- 1 - Minor Component (1 - 10 % by wt.)
- 2 - Trace Component (<1 % by wt.)
- 3 - Trace Component (<0.1 % by wt.)
- 4 - Trace Component (low PPM range)
- 5 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 116A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

CYCLOHEXANE	T
DECANE	T
HEXANE	T
KEROSENE	T
NONANE	T
PENTANE	T
PETROLEUM ETHER	T

GROUP 30: PEROXIDES AND HYDROPEROXIDES, ORGANIC
(Constituents reacted prior to loading in payload containers.)

SODIUM PEROXIDE	T
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GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

THENOYL TRIFLUOROACETONE (TTA)	T
TRI-N-OCTYL PHOSPHINE OXIDE (TOPO)	T
TRIBUTYL PHOSPHATE	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	M
BAKELITE	D
BENELEX	D
CARBON, SPENT, ACTIVATED	D
CELLULOSE	D
GREASE	T
NAPHTHA	T
OIL	D
PAPER	D
PLEXIGLAS	D
POLYETHYLENE	D
POLYPROPYLENE	D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 125A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS (CONTINUED)

POLYSTYRENE	D
POLYURETHANE	D
POLYVINYL CHLORIDE	D
PVC SOLVENT CEMENT	T
RUBBER GLOVES	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	D
TEFLON	M
WAXES	M
WOOD	D

GROUP 103: POLYMERIZABLE COMPOUNDS

(Constituents reacted prior to loading in payload containers.)

EPOXY	T
WATER-EXTENDED POLYESTER	T

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers.)

ALUMINUM NITRATE	T1
ALUMINUM NITRATE NANOHYDRATE	T
BROMINE	T
CHROMIC ACID	T
HYDROGEN PEROXIDE	T
HYDROXYL AMINE NITRATE	T
POTASSIUM PERMANGANATE	T
SODIUM NITRATE	T
SODIUM NITRITE	T
SODIUM PEROXIDE	T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 116A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

GROUP 105: REDUCING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers..)

FERROUS SULFAMATE	
HYDRAZINE	T
HYDROXYLAMINE	T
SODIUM BOROHYDRIDE	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	
WATER	T

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers.)

ALUMINUM CHLORIDE	
BARIUM OXIDE	T
CALCIUM OXIDE	T
HYDROBROMIC ACID	T
SODIUM	T

OTHER ORGANICS

ACRYLIC PAINT	
ALARA	M
BH-38, COMPLEXING AGENT	T
EDTA	T
FLUORINERT	T
FOAMING INSURANCE, COMPLEXING AGENT	T
LEXAN	T
MAGNAFLUX, COMPLEXING AGENT	M
MOLDS AND CRUCIBLES, GRAPHITE	T
TURCO 4320, COMPLEXING AGENT	M
	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 116A, SR 116B, SR 116C, SR 116A
(Continued)
IDC 001

COMBUSTIBLE JOB-CONTROL WASTE

OTHER INORGANICS

ALUMINA/SILICA BLANKET	D
BATTERIES	D
BORATED WATER (Crystallized)	D
FIREBRICK	D
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
INSULATION	D
MOLDS AND CRUCIBLES, CERAMIC	D
OTHER FILTERS	D
SAND	D
SLAG	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CELITE	D
CONCRETE	D
OIL-DRI	D
SODA ASH	D
SURFACTANTS (Nonphosphated Anionic Detergent)	D
VERMICULITE	D

-
- D = Dominant Component (>10 % by wt.)
 - M = Minor Component (1 - 10 % by wt.)
 - T = Trace Component (<1 % by wt.)
 - T1 = Trace Component (<0.1 % by wt.)
 - T2 = Trace Component (low PPM range)
 - T3 = Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 1: ACIDS, MINERAL, NON-OXIDIZING
(Constituents reacted prior to loading in payload containers)

BORIC ACID	T
CHLOROSULFONIC ACID (Reacted)	T
FLUOROBORIC ACID	T
FLUOSILICIC ACID	T
HYDROBROMIC ACID	T
HYDROCHLORIC ACID	T
HYDROFLUORIC ACID	T
HYDROIODIC ACID	T
NITRIC ACID	T
PHOSPHORIC ACID	T
SULFONIC ACID	T
SULFURIC ACID (<70%)	T

GROUP 2: ACIDS, MINERAL, OXIDIZING
(Constituents reacted prior to loading in payload containers)

CHROMIC ACID	T
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GROUP 3: ACIDS, ORGANIC
(Constituents reacted prior to loading in payload containers)

ACETIC ACID	T1
ASCORBIC ACID	T
FORMIC ACID	T

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T
ETHANOL	T
GLYCERIN	T
ISOPROPANOL	T
METHANOL	T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C

(Continued)

No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 8: AZO COMPOUNDS, DIAZO COMPOUNDS, AND HYDRAZINES
(Constituents reacted prior to loading in payload containers.)

HYDRAZINE	T
HYDRAZINE MONONITRATE	T

GROUP 10: CAUSTICS
(Constituents reacted prior to loading in payload containers.)

AMMONIUM HYDROXIDE	T
BARIUM HYDROXIDE	T
BARIUM OXIDE	T
BERYLLIUM HYDROXIDE	T
CALCIUM HYDROXIDE	T
CALCIUM OXIDE	T
POTASSIUM HYDROXIDE	T
SODIUM CARBONATE	T
SODIUM HYDROXIDE	T
SODIUM HYPOCHLORITE	T

GROUP 14: ETHERS

ETHYL ETHER	T
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GROUP 15: FLUORIDES, INORGANIC
(Constituents reacted prior to loading in payload containers.)

ALUMINUM FLUORIDE	T
AMMONIUM BIFLUORIDE	T
AMMONIUM FLUORIDE	T
BARIUM FLUORIDE	T
CALCIUM FLUORIDE	T
FLUOSILICIC ACID	T
HYDROFLUORIC ACID	T
MAGNESIUM FLUORIDE	T

D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 15: FLUORIDES, INORGANIC (CONTINUED)

(Constituents reacted prior to loading in payload containers)

POTASSIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 16: HYDROCARBONS, AROMATIC

TOLUENE	T
XYLENE	T

GROUP 17: HALOGENATED ORGANICS

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T
CHLOROFORM	T

GROUP 19: KETONES

ACETONE	T
METHYL ACETONE	T
METHYL ISOBUTYL KETONE	T

GROUP 21: METALS, ALKALI AND ALKALINE EARTH, ELEMENTAL AND ALLOYS
(Constituents reacted prior to loading in payload containers)

CALCIUM	T
POTASSIUM	T
SODIUM	T

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES

ALUMINUM	T
MAGNESIUM	T

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 22: METALS, OTHER ELEMENTAL AND ALLOYS IN THE FORM OF POWDERS, VAPORS
OR SPONGES (CONTINUED)

MERCURY (VAPOR)	T
NICKEL	T
THORIUM	T
TITANIUM	T
URANIUM	T
ZIRCONIUM	T

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
COPPER	M
GOLD	T
GRAPHITE	M
IRON	D
LEAD	D
NICKEL	T
PLATINUM	M
SILVER	T
STAINLESS STEEL	D
TANTALUM	T
THORIUM	T
TITANIUM	T
TUNGSTEN	M
URANIUM	T
ZINC	T
ZIRCONIUM	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

ACRYLEAD	T
BARIUM	T

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC (CONTINUED)

BARIUM CHLORIDE	T
BARIUM FLUORIDE	T
BARIUM NITRATE	T
BARIUM OXIDE	T
BARIUM SULFATE	M
BERYLLIUM	T
BORON CARBIDE	T1
CADMIUM	D
CHROMIUM	T
COPPER	M
LEAD	D
LEAD NITRATE	T
LEAD OXIDE	T
MAGNESIUM OXIDE	T
MERCURIC NITRATE	T
MERCURY	T
NICKEL NITRATE	T
POTASSIUM DICHROMATE	T
SILVER NITRATE	T
SODIUM CHROMATE	T
SODIUM DICHROMATE	T
SODIUM TETRABORATE	T
STRONTIUM NITRATE	T
TITANIUM	T
URANIUM SULFIDE	T
URANYL NITRATE	T
ZINC	T
ZINC NITRATE	T
ZIRCONIUM	T

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range 9-14)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 29: HYDROCARBON, ALIPHATIC, SATURATED

CYCLOHEXANE	T
DECANE	T
HEXANE	T
KEROSENE	T
NONANE	T
PENTANE	T
PETROLEUM ETHER	T

GROUP 30: PEROXIDES AND HYDROPEROXIDES, ORGANIC
(Constituents reacted prior to loading in payload containers.)

SODIUM PEROXIDE	T
-----------------	---

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

THENOYL TRIFLUOROACETONE (TTA)	T
TRI-N-OCTYL PHOSPHINE OXIDE (TOPO)	T
TRIBUTYL PHOSPHATE	T

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

CARBON, SPENT, ACTIVATED	D
GREASE	T
NAPHTHA	T
PVC SOLVENT CEMENT	T

GROUP 103: POLYMERIZABLE COMPOUNDS
(Constituents reacted prior to loading in payload containers.)

EPOXY	T
WATER-EXTENDED POLYESTER	T

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)
No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

GROUP 104: OXIDIZING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers)

ALUMINUM NITRATE	T1
ALUMINUM NITRATE NANOHYDRATE	T1
BROMINE	T
CHROMIC ACID	T
HYDROGEN PEROXIDE	T
HYDROXYL AMINE NITRATE	T
POTASSIUM PERMANGANATE	T
SODIUM NITRATE	T
SODIUM NITRITE	T
SODIUM PEROXIDE	T

GROUP 105: REDUCING AGENTS, STRONG

(Constituents reacted prior to loading in payload containers)

FERROUS SULFAMATE	T
HYDRAZINE	T
HYDROXYLAMINE	T
SODIUM BOROHYDRIDE	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
WATER	T

GROUP 107: WATER REACTIVE SUBSTANCES

(Constituents reacted prior to loading in payload containers)

ALUMINUM CHLORIDE	T
BARIUM OXIDE	T
CALCIUM OXIDE	T
HYDROBROMIC ACID	T
SODIUM	T

-
- D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Savannah River Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes SR 122A, SR 122B, SR 122C
(Continued)

No corresponding IDCs

NONCOMBUSTIBLE JOB-CONTROL WASTE

OTHER ORGANICS

ACRYLIC PAINT	T
BH-38, COMPLEXING AGENT	T
EDTA	T
FLUORINERT	T
FOAMING INSURANCE, COMPLEXING AGENT	T
MAGNAFLUX, COMPLEXING AGENT	T1
MOLDS AND CRUCIBLES, GRAPHITE	T1
	M

OTHER INORGANICS

ALUMINA/SILICA BLANKET	T
BORATED WATER (Crystallized)	T
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	M
INSULATION	M
MOLDS AND CRUCIBLES, CERAMIC	M
SAND	D
SLAG	M
SOIL	T
	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CELITE	M
CONCRETE	M
OIL-DRI	M
SODA ASH	D
VERMICULITE	M
	D

-
- D - Dominant Component (>10 % by wt.)
 - M - Minor Component (1 - 10 % by wt.)
 - T - Trace Component (<1 % by wt.)
 - T1 - Trace Component (<0.1 % by wt.)
 - T2 - Trace Component (low PPM range)
 - T3 - Trace Component (<1 PPM range)

ATTACHMENT C

CHEMICAL COMPATIBILITY ANALYSIS FOR ROCKY FLATS PLANT WASTE FORMS (APPENDIX 2.10.12 OF TRUPACT-II SAFETY ANALYSIS REPORT)

APPENDIX 2.10.12

CHEMICAL COMPATIBILITY OF WASTE FORMS

APPENDIX 2.10.12

CHEMICAL COMPATIBILITY OF WASTE FORMS

1.0 INTRODUCTION

This appendix describes the method used for demonstrating chemical compatibility in a given payload container, within a given content code and among content codes to simulate mixing of waste during hypothetical accident conditions.

2.0 CHEMICAL COMPATIBILITY ANALYSES

The chemical compatibility analysis was performed using the methods described in the EPA document "A Method for Determining the Compatibility of Hazardous Wastes" which is Reference 3.1. Content codes are classified as 'incompatible' if the potential exists for any of the following reactions:

- corrosion
- explosion
- heat generation
- gas generation (flammable gases)
- pressure build up (nonflammable gases)
- toxic by-product generation

Each generator and storage site has produced a comprehensive list of all possible chemicals present in their waste. The chemical components found in each waste generation process are determined by examining the process technology, by chemical analysis, or by process flow analysis. Under this system, all chemical inputs into the system are accounted for, even though all of these components may not be a part of the waste. For example, generator sites might include both acids and bases in their lists, even though the two groups have been neutralized prior to placement in a payload container.

The chemical concentration levels are reported as either Trace (T)(<1% by weight), Minor (M)(1-10%), or Dominant (D)(>10%). The list is divided into

groups based on chemical properties and structure (e.g., acids, caustics, metals, etc.). Table 1 lists all the groups and their number designations. As noted in the table, the groups and examples listed are only for illustrative purposes, and do not necessarily represent components of waste materials in a TRUPACT-II payload. A listing of all chemicals present in the waste by waste material type (i.e., I.1, I.2, I.3, II.1, II.2, III.1 and IV) is provided in Appendix 1.3.7. (Subsequent references to waste types will use the condensed list of I, II, III and IV.) If incompatible groups are combined, the possibility exists for the reactions listed above. For example, a reaction between Group 1 (Acids, Mineral, Non-oxidizing) and Group 10 (Caustics) could result in heat generation. The chemical compatibility criteria (Reference 3.1) were entered into a computer database program to determine all combinations of such potential incompatibilities in the waste types. Incompatibilities have been defined within each content code, and where mixing of content codes could occur under hypothetical accident conditions.

Interactions between compounds present in trace quantities (<1 percent by weight) and compounds present in concentrations ≥ 1 percent by weight (i.e., D x T, M x T, or T x T) do not pose an incompatibility problem for the following reasons:

- Total trace chemicals within a payload container are limited to less than 5 weight percent.

- The trace chemicals reported by the sites are in concentrations well below the trace limit of 1 weight percent. An example is the Volatile Organic Compounds (VOCs) discussed in detail in Appendix 2.10.11. Sampling programs show that the concentration levels of these compounds are significantly lower than the upper limit of 1%.

- The trace chemicals are usually dispersed in the waste which further dilutes concentrations of these materials.

- Trace chemicals that might be incompatible with major and dominant materials/chemicals would have reacted during the waste treatment process prior to placement in payload containers.

TABLE 1
EPA LIST OF CHEMICAL GROUPS AND MATERIALS*

GROUP NUMBER	GROUP NAME	EXAMPLE
1	Acids, Mineral, Non-Oxidizing	Hydrochloric Acid
2	Acids, Mineral, Oxidizing	Nitric Acid (>1%)
3	Acids, Organic	Acetic Acid
4	Alcohols and Glycols	Methanol
5	Aldehydes	Formaldehyde
6	Amides	Acetamide
7	Amines, Aliphatic and Aromatic	Aniline
8	Azo Compounds, Diazo Compounds and Hydrazines	Hydrazine
9	Carbamates	Carbaryl
10	Caustics	Sodium Hydroxide
11	Cyanides	Potassium Cyanide
12	Dithiocarbamates	Maneb
13	Esters	Vinyl Acetate
14	Ethers	Tetrahydrofuran
15	Fluorides, Inorganic	Potassium Fluoride
16	Hydrocarbons, Aromatic	Toluene
17	Halogenated Organics	Carbon Tetrachloride
18	Isocyanates	Methyl Isocyanate
19	Ketones	Acetone
20	Mercaptans and other Organic Sulfides	Carbon Disulfide
21	Metals, Alkali and Alkaline Earth, Elemental	Metallic Sodium

* Modified from "A Method for Determining the Compatibility of Hazardous Wastes," Reference 3.1.

NOTE: The chemical groups and materials listed in this table are a comprehensive listing of chemical compounds that may be incompatible. This is not meant to infer that all the listed chemical compounds and materials are present in TRU waste.

TABLE 1
EPA LIST OF CHEMICAL GROUPS AND MATERIALS*
(CONTINUED)

GROUP NUMBER	GROUP NAME	EXAMPLE
22	Metals, other Elemental and Alloys in the form of Powders, Vapors or Sponges	Titanium
23	Metals, other Elemental and Alloys as Sheets, Rods, Moldings, Drops, etc.	Aluminum
24	Metals and Metal Compounds, Toxic	Beryllium
25	Nitrides	Sodium Nitride
26	Nitriles	Acetonitrile
27	Nitro Compounds	Dinitrobenzene
28	Hydrocarbons, Aliphatic, Unsaturated	Butadiene
29	Hydrocarbons, Aliphatic, Saturated	Cyclohexane
30	Peroxides and Hydroperoxides Organic	Acetyl Peroxide
31	Phenols, Cresols	Phenol
32	Organophosphates, Phosphothioates, and Phosphodithioates	Malathion
33	Sulfides, Inorganic	Zinc Sulfide
34	Epoxides	Epoxybutane

* Modified from "A Method for Determining the Compatibility of Hazardous Wastes," Reference 3.1.

NOTE: The chemical groups and materials listed in this table are a comprehensive listing of chemical compounds that may be incompatible. This is not meant to infer that all the listed chemical compounds and materials are present in TRU waste.

TABLE 1
EPA LIST OF CHEMICAL GROUPS AND MATERIALS*
(CONTINUED)

GROUP NUMBER	GROUP NAME	EXAMPLE
101	Combustible and Flammable Materials, Miscellaneous	Cellulose
102	Explosives	Ammonium Nitrate
103	Polymerizable Compounds	Acrylonitrile
104	Oxidizing Agents, Strong	Hydrogen Peroxide
105	Reducing Agents, Strong	Metallic Sodium
106	Water and Mixtures Containing Water	Water
107	Water Reactive Substances	Sulfuric Acid (>70%)

* Modified from "A Method for Determining the Compatibility of Hazardous Wastes," Reference 3.1.

NOTE: The chemical groups and materials listed in this table are a comprehensive listing of chemical compounds that may be incompatible. This is not meant to infer that all the listed chemical compounds and materials are present in TRU waste.

Because of restrictions imposed by the Environmental Protection Agency (EPA) on reporting of hazardous wastes, some chemicals are listed in trace quantities even if they have already reacted. Hazardous waste regulations as promulgated by the EPA (Reference 3.2) (known as the mixture rule) require that a mixture of any solid waste and a hazardous waste listed in 40 CFR Part 261, Subpart D be considered a hazardous waste subject to RCRA regulations. However, Subpart D does not list minimum concentrations for these listed wastes, with the result that any such mixtures must be considered hazardous waste even if the Subpart D constituent is at or below detection limits.

The waste is either solidified and immobilized (solidified materials) or present in bulk form as a solid (solid materials). In almost all cases, any possible reactions take place before the waste is generated in its final form. Specific examples are outlined in Section 2.1.

Potential incompatibilities between minor and dominant compounds have been analyzed on a case-by-case basis for each site. Some chemicals listed as being present in the waste have reacted prior to becoming part of the waste. For example, a site listing a caustic (Group 10) and an acid (Group 1) in their waste has only the neutralized product present in an immobilized form. Further reactions of this type do not occur once the waste is generated in its final form. An additional constraint on the chemicals and materials that can be present within each waste material type is their gas generation potential due to radiolysis. Allowable chemicals in concentrations of greater than 1 weight percent within each waste material type are provided in Appendix 3.6.7. These chemicals are compatible within each waste type. In addition to being either solid or solidified materials, the chemicals on the lists are restricted to bulk materials that are in nonreactive forms. This means that within each waste material type, materials are compatible across all ten DOE sites for waste material types I.1, I.2, I.3, II.1, II.2, III.1, and IV.

Unresolved incompatibilities between minor and dominant, minor and minor, or dominant and dominant waste constituents were identified and segregated. These

wastes cannot be transported until they are demonstrated safe (by testing) for transport in TRUPACT-II. Chemical incompatibilities do not exist in content codes listed in TRUCON. This has been ensured by a knowledge of the processes generating the wastes and the chemical compatibility analysis. The following section details the chemical compatibility analysis for the different content codes at the Rocky Flats Plant (RFP), which is provided only as an example of the type of analysis performed for each site.

2.1 Chemical Compatibility Analysis for RFP Waste

The chemical compatibility analysis was performed using a database management system. The EPA method (Reference 3.1) was utilized to analyze both the chemical compatibility of each content code (i.e., within individual waste containers) and the compatibility of the TRUPACT-II payload during the hypothetical accident condition (i.e., between contents of individual waste containers). This discussion of chemical compatibility includes analysis between different content codes. Mixing of payload shipping categories within a TRUPACT-II payload is not allowed.

2.2 Chemical Compatibility of Each Content Code

Chemical compatibility has been analyzed for each content code based on the chemical constituents within each content code, as indicated in Table 2.

Nineteen potentially incompatible combinations were identified and are listed in Table 3. Each of the nineteen cases were evaluated. It was determined that the required processing, prior to placing the waste in the waste containers, obviated the potential incompatibility. Therefore, it was concluded that the chemicals/materials in each content code are chemically compatible. The detailed evaluation of each content code is as follows:

CONTENT CODE RF 111A - SOLIDIFIED AQUEOUS WASTE

Brief Description - The sludges are precipitated at a pH of 10-12 (basic). Any acid that is present in the waste generating process is neutralized. The sludge

Table 2

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 111A

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE	T3
--------------------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

D - Dominant Component (>10 % by wt.)
 M - Minor Component (1 - 10 % by wt.)
 T - Trace Component (<1 % by wt.)
 T1 - Trace Component (<0.1 % by wt.)
 T2 - Trace Component (low PPM range)
 T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 111A
(Continued)

SOLIDIFIED AQUEOUS WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
--------------------------------------	---

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE	D
PORTLAND CEMENT (Hydrated)	D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 111B

SOLIDIFIED AQUEOUS WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	T

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content CodesContent Codes RF 111B
(Continued)

SOLIDIFIED AQUEOUS WASTE

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES

TRIBUTYL PHOSPHATE T3

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material) M
POLYVINYL CHLORIDE (Packaging Material) M

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES T
SLUDGE (Fixed in matrix) D
WATER T

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE) T

OTHER INORGANICS

CLAY (BENTONITE) D
SODIUM CHLORIDE D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

DIATOMITE D
PORTLAND CEMENT (Hydrated) D

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 112A *

SOLIDIFIED ORGANICS

GROUP 4: ALCOHOLS AND GLYCOLS

POLYETHYLENE GLYCOL M

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE M

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE D

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE M

CARBON TETRACHLORIDE M

CHLOROFORM D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

OIL D

POLYETHYLENE (Packaging Material) T

POLYVINYL CHLORIDE (Packaging Material) T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

ENVIROSTONE (CaSO₄) D

POTASSIUM SULFATE M

* Can be shipped only as a test category.

D - Dominant Component (>10 % by wt.)

M - Minor Component (1 - 10 % by wt.)

T - Trace Component (<1 % by wt.)

T1 - Trace Component (<0.1 % by wt.)

T2 - Trace Component (low PPM range)

T3 - Trace Component (<1 PPM range)

2.10.12-12

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 113A *

SOLIDIFIED LABORATORY WASTE

GROUP 3: ACIDS, ORGANIC		
(Constituents reacted prior to loading in payload containers)		
ACETIC ACID		T
ASCORBIC ACID		T
CITRIC ACID		T
OXALIC ACID		T
GROUP 4: ALCOHOLS AND GLYCOLS		
BUTANOL		T1
ETHANOL		T1
ISOPROPANOL		T1
METHANOL		T1
GROUP 16: HYDROCARBONS, AROMATIC		
XYLENE		T1
GROUP 19: KETONES		
THENOYL TRIFLUOROACETONE (TTA)		T
GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHIOATES		
TRIBUTYL PHOSPHATE		T
TRIOCTYL PHOSPHINE OXIDE		T
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS		
POLYETHYLENE (Packaging Material)		T
POLYVINYL CHLORIDE (Packaging Material)		T

* Can be shipped only as a test category.

D - Dominant Component (>10 % by wt.)

M - Minor Component (1 - 10 % by wt.)

T - Trace Component (<1 % by wt.)

T1 - Trace Component (<0.1 % by wt.)

T2 - Trace Component (low PPM range)

T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content CodesContent Codes RF 113A *
(Continued)

SOLIDIFIED LABORATORY WASTE

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES (Fixed in matrix)	M
WATER	T

OTHER ORGANICS

1,10-PHENANTHROLINE	T3
ALPHA-HYDROXYQUINOLINE	T
EDTA	T
SODIUM ACETATE	T
SODIUM CITRATE	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

MAGNESIA CEMENT (Hydrated)	D
PORTLAND CEMENT (Hydrated)	D

* Can be shipped only as a test category.

D - Dominant Component (>10 % by wt.)

M - Minor Component (1 - 10 % by wt.)

T - Trace Component (<1 % by wt.)

T1 - Trace Component (<0.1 % by wt.)

T2 - Trace Component (low PPM range)

T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 114A

CEMENTED INORGANIC PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
--------	----

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER	T
-------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 114A
(Continued)

CEMENTED INORGANIC PROCESS SOLIDS

OTHER INORGANICS

FIREBRICK	D
GRIT	D
SAND	D
SLAG	D
SOOT	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
----------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 114B

CEMENTED INORGANIC PROCESS SOLIDS

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
METHANOL	T2

GROUP 16: HYDROCARBONS, AROMATIC

XYLENE	T2
--------	----

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	T1
------	----

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

D - Dominant Component (>10 % by wt.)

M - Minor Component (1 - 10 % by wt.)

T - Trace Component (<1 % by wt.)

T1 - Trace Component (<0.1 % by wt.)

T2 - Trace Component (low PPM range)

T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content CodesContent Codes RF 1148
(Continued)

CEMENTED INORGANIC PROCESS SOLIDS

GROUP 106: WATER AND MIXTURES CONTAINING WATER

WATER

T

OTHER INORGANICS

CLAY (BENTONITE)

D

FIREBRICK

D

GRIT

D

SAND

D

SLAG

D

SODIUM CHLORIDE

D

SOOT

D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)

D

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 115A

GRAPHITE WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE	D
-------------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 115B

GRAPHITE WASTE

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL

M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)

T

POLYVINYL CHLORIDE (Packaging Material)

T

OTHER ORGANICS

MOLDS AND CRUCIBLES, GRAPHITE

D

OTHER INORGANICS

CLAY (BENTONITE)

D

SODIUM CHLORIDE

D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

2.10.12-20

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 116A

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

PAPER	D
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 116B

COMBUSTIBLE WASTE

GROUP 15: FLUORIDES, INORGANIC (Constituents reacted prior to loading in payload containers)	
CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T
GROUP 17: HALOGENATED ORGANICS	
1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.	
LOW CARBON STEEL	M
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
PAPER	D
POLYETHYLENE	D
POLYVINYL CHLORIDE	D
SYNTHETIC RUBBER	D
OTHER INORGANICS	
CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 116B
(Continued)

COMBUSTIBLE WASTE

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 117A

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC (Constituents reacted prior to loading in payload containers)		
CALCIUM FLUORIDE		T
SODIUM FLUORIDE		T
GROUP 17: HALOGENATED ORGANICS		
1,1,1-TRICHLOROETHANE		T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		T2
CARBON TETRACHLORIDE		T2
METHYLENE CHLORIDE		T1
GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.		
ALUMINUM		D
COPPER		D
IRON		D
LEAD		D
STAINLESS STEEL		D
TANTALUM		D
TUNGSTEN		D
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC		
BERYLLIUM		D
COPPER		D
LEAD		D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 117A
(Continued)

METAL WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 117B

METAL WASTE

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T2
CARBON TETRACHLORIDE	T2
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
COPPER	D
IRON	D
LEAD	D
LOW CARBON STEEL	M
STAINLESS STEEL	D
TANTALUM	D
TUNGSTEN	D

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	D
COPPER	D
LEAD	D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 117B
(Continued)

METAL WASTE

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

2.10.12-27

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 118A

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3
CARBON TETRACHLORIDE	T3

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	T
LEAD	D
STEEL	T
TUNGSTEN	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D
MERCURY	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
MOLDS AND CRUCIBLES, CERAMIC	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	M
---------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 118B

GLASS WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T3
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T3
CARBON TETRACHLORIDE	T3

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	T
LEAD	D
LOW CARBON STEEL	M
STEEL	T
TUNGSTEN	T

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD	D
MERCURY	T2

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
GLASS, LABWARE	D
GLASS, RASCHIG RINGS	D
MOLDS AND CRUCIBLES, CERAMIC	D
SODIUM CHLORIDE	D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 118B
(Continued)

GLASS WASTE

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI

M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 119A

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLLINGS,
DROPS, ETC.

ALUMINUM	D
----------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYPROPYLENE (Ful-Flo Filters)	D
POLYVINYL CHLORIDE (Packaging Material)	M
WOOD	D

OTHER INORGANICS

HEPA FILTERS (or filter media)	D
OTHER FILTERS	D
PLENUM PREFILTERS (FIBERGLASS)	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M
----------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 119B

FILTER WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T1
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T2

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS, DROPS, ETC.

ALUMINUM	D
LOW CARBON STEEL	M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYPROPYLENE (Ful-Flo Filters)	D
POLYVINYL CHLORIDE (Packaging Material)	M
WOOD	D

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D
OTHER FILTERS	D
FIBERGLASS PREFILTERS (FIBERGLASS)	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	M
----------------------------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 121A

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
METHYLENE CHLORIDE	T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D
PHENOLIC RESINS	T
POLYETHYLENE (Packaging Material)	T
POLYMETHYL METHACRYLATE	D
POLYVINYL CHLORIDE (Packaging Material)	T
WOOD	D

OTHER INORGANICS

SAND	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D
OIL-DRI	M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 121B

ORGANIC SOLID WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D
PHENOLIC RESINS	T
POLYETHYLENE (Packaging Material)	T
POLYMETHYL METHACRYLATE	D
POLYVINYL CHLORIDE (Packaging Material)	T
WOOD	D

OTHER INORGANICS

CLAY (BENTONITE)	D
SAND	D
SODIUM CHLORIDE	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D
OIL-DRI	M

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 122A

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

FIREBRICK	D
INSULATION	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	D
---------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 122B

SOLID INORGANIC WASTE

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL	M
------------------	---

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE (Packaging Material)	M
POLYVINYL CHLORIDE (Packaging Material)	M

OTHER INORGANICS

CLAY (BENTONITE)	D
FIREBRICK	D
INSULATION	D
SODIUM CHLORIDE	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

OIL-DRI	D
---------	---

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 123A

LEADED RUBBER

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves) D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T
POLYVINYL CHLORIDE T
RUBBER GLOVES, LEADED D

D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 123B

LEADED RUBBER

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS
DROPS, ETC.

LOW CARBON STEEL M

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

LEAD (Rubber Gloves) D

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

POLYETHYLENE T

POLYVINYL CHLORIDE T

RUBBER GLOVES, LEADED D

OTHER INORGANICS

CLAY (BENTONITE) D

SODIUM CHLORIDE D

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Codes RF 124A

PYROCHEMICAL SALT WASTE

GROUP 10: CAUSTICS (Constituents dispersed in chloride salts.)	
CALCIUM OXIDE	M
GROUP 24: METALS AND METAL COMPOUNDS, TOXIC	
MAGNESIUM OXIDE	T1
GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS	
POLYETHYLENE (Packaging Material)	T
POLYVINYL CHLORIDE (Packaging Material)	T
GROUP 107: WATER REACTIVE SUBSTANCES (Constituents dispersed in chloride salts.)	
CALCIUM OXIDE	M
OTHER INORGANICS	
CALCIUM CHLORIDE	D
CESIUM CHLORIDE	D
MAGNESIUM CHLORIDE	D
METAL CANS (for salt)	M
POTASSIUM CHLORIDE	D
SODIUM CHLORIDE	D

-
- D - Dominant Component (>10 % by wt.)
M - Minor Component (1 - 10 % by wt.)
T - Trace Component (<1 % by wt.)
T1 - Trace Component (<0.1 % by wt.)
T2 - Trace Component (low PPM range)
T3 - Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 126A

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex)	D
POLYETHYLENE	T
POLYVINYL CHLORIDE	T

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated)	D
----------------------------	---

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 126B

CEMENTED ORGANIC PROCESS SOLIDS

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

LOW CARBON STEEL M

GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ION EXCHANGE RESIN (Dowex) D
POLYETHYLENE T
POLYVINYL CHLORIDE T

OTHER INORGANICS

CLAY (BENTONITE) D
SODIUM CHLORIDE D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

PORTLAND CEMENT (Hydrated) D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 4: ALCOHOLS AND GLYCOLS

BUTANOL	T2
ETHANOL	T2
ISOPROPANOL	T2
METHANOL	T2

GROUP 15: FLUORIDES, INORGANIC

(Constituents reacted prior to loading in payload containers.)

CALCIUM FLUORIDE	T
SODIUM FLUORIDE	T

GROUP 16: HYDROCARBONS, AROMATIC

ETHYL BENZENE	T2
TOLUENE	T2
XYLENE	T2

GROUP 17: HALOGENATED ORGANICS

1,1,1-TRICHLOROETHANE	T
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	T
CARBON TETRACHLORIDE	T1
METHYLENE CHLORIDE	T1

GROUP 23: METALS, OTHER ELEMENTAL AND ALLOYS, AS SHEETS, RODS, MOLDINGS,
DROPS, ETC.

ALUMINUM	D
LOW CARBON STEEL	M

-
- D = Dominant Component (>10 % by wt.)
 M = Minor Component (1 - 10 % by wt.)
 T = Trace Component (<1 % by wt.)
 T1 = Trace Component (<0.1 % by wt.)
 T2 = Trace Component (low PPM range)
 T3 = Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A
(Continued)

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

GROUP 24: METALS AND METAL COMPOUNDS, TOXIC

BERYLLIUM	T2
CADMIUM	T2
LEAD	D

GROUP 32: ORGANOPHOSPHATES, PHOSPHOTHIOATES AND PHOSPHODITHICATES

TRIBUTYL PHOSPHATE	T3
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GROUP 101: COMBUSTIBLE AND FLAMMABLE MATERIALS, MISCELLANEOUS

ASPHALT	D
PAPER	D
PHENOLIC RESINS	T
POLYETHYLENE	D
POLYMETHYL METHACRYLATE	D
POLYPROPYLENE (Ful-Flo Filters)	D
POLYVINYL CHLORIDE	D
RUBBER GLOVES, LEADED	D
SYNTHETIC RUBBER	D
WOOD	D

GROUP 106: WATER AND MIXTURES CONTAINING WATER

AQUEOUS SOLUTIONS AND MIXTURES	T
SLUDGE (Fixed in matrix)	D
WATER	T

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

Table 2
(Continued)

Rocky Flats Plant
List of Chemicals and Materials
in TRU Waste Content Codes

Content Code RF 127A
(Continued)

COMBINED SOLID ORGANICS AND SOLIDIFIED INORGANIC WASTE

OTHER ORGANICS

FLOCCULATING AGENT (POLYELECTROLYTE)	T
--------------------------------------	---

OTHER INORGANICS

CLAY (BENTONITE)	D
HEPA FILTERS (or filter media)	D
OTHER FILTERS	D
PLENUM PREFILTERS (FIBERGLASS)	D
SAND	D
SODIUM CHLORIDE	D
SOIL	D

OTHER SOLIDIFICATION MATERIAL/ABSORBENTS

CONCRETE	D
DIATOMITE	D
OIL-DRI	M
PORTLAND CEMENT (Hydrated)	D

D = Dominant Component (>10 % by wt.)
M = Minor Component (1 - 10 % by wt.)
T = Trace Component (<1 % by wt.)
T1 = Trace Component (<0.1 % by wt.)
T2 = Trace Component (low PPM range)
T3 = Trace Component (<1 PPM range)

TABLE 3
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS

Content Code	Potential Chemical Compatibility Reaction	Concentration of Reactants#	Reaction Code *
RF 111A	Metal and Compounds, Toxic x Water (24 x 106)	T x D	S
RF 111B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x M	H F
	Metal and Compounds, Toxic X Water (24 x 106)	T x D	S
RF 112A	None		
RF 113A	None		
RF 114A	None		
RF 114B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x M	H F
RF 115A	None		
RF 115B	None		
RF 116A	None		
RF 116B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T x M	H F
RF 117A	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x D	H F
RF 117B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x D	H F

* Reaction Code: H - heat generation, S - solubilization of toxic substances, F - fire, GF - flammable gas generation, G - non-flammable gas generation.

Concentration of Reactants: T - Trace (<1% by wt.), T1 - Trace (<0.1%), T2 - Trace (low ppm range), T3 - Trace (<1 ppm range), M - Minor (1-10%), and D - Dominant (>10%).

TABLE 3 (cont.)

SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS

Content Code	Potential Chemical Compatibility Reaction	Concentration of Reactants#	Reaction Code *
RF 118A	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T3 x D	H F
RF 118B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T3 x D	H F
RF 119A	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x D	H F
RF 119B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T1 x D	H F
RF 121A	None		
RF 121B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T x M	H F
RF 122A	None		
RF 122B	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T x M	H F
RF 123A	None		
RF 123B	None		

* Reaction Code: H - heat generation, S - solubilization of toxic substances, F - fire, GF - flammable gas generation, G - non-flammable gas generation.

Concentration of Reactants: T - Trace (<1% by wt.), T1 - Trace (<0.1%), T2 - Trace (low ppm range), T3 - Trace (<1 ppm range), M - Minor (1-10%), and D - Dominant (>10%).

TABLE 3 (cont.)

SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS

Content Code	Potential Chemical Compatibility Reaction	Concentration of Reactants#	Reaction Code *
RF 124A	Caustics x Metal and Compounds, Toxic (10 x 24)	M x T1	S
	Metals and Compounds, Toxic x Water Reactive Substances (24 x 107)	T1 x M	Potentially Reactive
	Combustible and Flammable Materials x Water Reactive Substances (101 x 107)	T x M	Potentially Reactive
	Caustics x Water Reactive Substances (10 x 107)	M x M	Not Valid
RF 126A	None		
RF 126B	None		
RF 127A	Halogenated Organics x Metals and other elemental and alloys as sheets, rods, etc. (17 x 23)	T x X	H F
RF 127A	Metal and Compounds, Toxic x Water (24 x 106)	D X D	S

* Reaction Code: H = heat generation, S = solubilization of toxic substances, F = fire, GF = flammable gas generation, G = non-flammable gas generation.

Concentration of Reactants: T = Trace (<1% by wt.), T1 = Trace (<0.1%), T2 = Trace (low ppm range), T3 = Trace (<1 ppm range), M = Minor (1-10%), and D = Dominant (>10%).

is then vacuum filtrated to a solidified material or immobilized with concrete. The dewatered or cemented sludge has sorbents added to immobilize any residual fluids. The drum is inspected for the presence of any residual liquids.

Chemical Compatibility - Only one potential chemical incompatibility was found for this content code. This incompatibility is possible solubilization of toxic metals, which is not a concern since the water from the sludge is fixed in the cemented product and would not be available for reaction. In addition, solubilization of toxic metals does not present a transportation concern for TRUPACT-II. This content code is considered to be chemically compatible.

CONTENT CODE RF 111B - SOLIDIFIED AQUEOUS WASTE

Brief Description - The sludges are precipitated at a pH of 10-12 (basic). Any acid that is present in the waste generating process is neutralized. The sludge is then vacuum filtrated to a solidified material or immobilized with concrete. The dewatered or cemented sludge has sorbents added to immobilize any residual fluids. The drum is inspected for the presence of any residual liquids. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only two potential chemical incompatibilities were found for this content code. The first incompatibility is possible solubilization of toxic metals, which is not a concern since the water from the sludge is fixed in the cemented product and would not be available for reaction. In addition, solubilization of toxic metals does not present a transportation concern for TRUPACT-II. This content code is considered to be chemically compatible.

The second potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only trace quantities ($Tl < 0.1\%$) and are fixed in the cemented sludge and would not be available to react with the metals.

CONTENT CODE RF 112A - SOLIDIFIED ORGANICS

Brief Description - CH-TRU solidified organic waste is produced from liquid organics such as oils, solvents, and lathe coolants. The organic liquids are mixed with gypsum cement (Envirostone). After solidification, the drum is inspected for any residual liquids.

Chemical Compatibility - No potential chemical incompatibilities were identified within this content code. This content code is currently assigned to a test category due to an incomplete effective G value characterization (a measure of the gas generation potential). This content code cannot be transported until this characterization is complete.

CONTENT CODE RF 113A - SOLIDIFIED LABORATORY WASTE

Brief Description - Aqueous laboratory wastes that are not compatible (i.e., strong acids or bases) with the primary aqueous treatment system are neutralized and solidified as content code RF113A. The final content code is obtained by mixing portland and magnesia cement with the waste.

Chemical Compatibility - No potential chemical incompatibilities were identified within this content code. This content code is currently assigned to a test category due to the incomplete effective G value characterization (a measure of the gas generation potential). This content code cannot be transported until this characterization is complete.

CONTENT CODE RF 114A - CEMENTED INORGANIC PROCESS SOLIDS

Brief Description - All line-generated particulate and sludge-like wastes are immobilized in portland cement. A formula for each waste type is used to precondition the waste (e.g., neutralize, thicken, etc.). The waste is usually cemented in 1-gallon cans and then removed for placement in the waste drum.

Chemical Compatibility - No potential chemical incompatibilities were identified in the content code.

CONTENT CODE RF 114B - CEMENTED INORGANIC PROCESS SOLIDS

Brief Description - All line-generated particulate and sludge-like wastes are immobilized in portland cement. A formula for each waste type is used to precondition the waste (e.g., neutralize, thicken, etc.). The waste is usually cemented in 1-gallon cans and then removed for placement in the waste drum. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only one potential chemical incompatibility was found for this content code. This potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only trace quantities ($Tl < 0.1\%$) and are fixed in the cemented sludge and would not be available to react with the metals.

CONTENT CODE RF 115A - GRAPHITE WASTE

Brief Description - CH-TRU graphite waste consists of scarfed graphite molds and graphite chunks, and coarse graphite pieces which have been used for casting molten plutonium.

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 115B - GRAPHITE WASTE

Brief Description - CH-TRU graphite waste consists of scarfed graphite molds and graphite chunks, and coarse graphite pieces which have been used for casting molten plutonium. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 116A - COMBUSTIBLE WASTE

Brief Description - 'Combustibles' consists of paper, rags, cloth coveralls, plastics, rubber, wood, and other similar items.

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

Note - Spills of acids (e.g., HNO_3) can occur and are wiped up with cellulosic materials. The Rocky Flats Plant has very strict controls on the washing and drying of cellulose that have been used to clean up acid spills. Even old (12+ years old) waste, retrieved from storage as part of the INEL sampling study (Reference 3.3) showed no signs of yellow or brown stains on the cellulosic waste materials. This is a positive indication that good washing techniques are practiced and no oxidation is occurring due to nitric acid residues.

CONTENT CODE RF 116B - COMBUSTIBLE WASTE

Brief Description - 'Combustibles' consists of paper, rags, cloth coveralls, plastics, rubber, wood, and other similar items. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only one potential chemical incompatibility has been identified - the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only trace quantities absorbed on combustibles and are not present as free liquids to react with the metals.

Note - Spills of acids (e.g., HNO_3) can occur and are wiped up with cellulosic materials. The Rocky Flats Plant has very strict controls on the washing and drying of cellulose that have been used to clean up acid spills. Even old (12+ years old) waste, retrieved from storage as part of the INEL sampling study

(Reference 3.3) showed no signs of yellow or brown stains on the cellulosic waste materials. This is a positive indication that good washing techniques are practiced and no oxidation is occurring due to nitric acid residues.

CONTENT CODE RF 117A - METAL WASTE

Brief Description - Typical metal waste contains iron, copper, aluminum, stainless steel, tungsten, lead, and tantalum. Pyrophoric materials are specifically excluded.

Chemical Compatibility - The only potential chemical incompatibility is the potential reaction between halogenated hydrocarbons and metals, other elemental and alloys as sheets, rods, drop, moldings, etc. Although this is a potential incompatibility, the potential effects are considered minimal for the following reasons. First, the halogenated hydrocarbons are only present in trace quantities (<1 percent by weight) in the content code. Second, although the metals of concern (aluminum and magnesium) occur in minor-to-dominant quantities in the content code, the metals only occur as large pieces of metal and not in powder form, which is more reactive with the halogenated hydrocarbons. Due to the trace quantities of halogenated organics in the content code and the non-powder size of the metal pieces, any reaction that may occur will produce minimal heat. Therefore, this content code is considered to be chemically compatible.

CONTENT CODE RF 117B - METAL WASTE

Brief Description - Typical metal waste contains iron, copper, aluminum, stainless steel, tungsten, lead, and tantalum. Pyrophoric materials are specifically excluded. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - The only potential chemical incompatibility is the potential reaction between halogenated hydrocarbons and metals, other elemental and alloys as sheets, rods, drop, moldings, etc. Although this is a potential incompatibility, the potential effects are considered minimal for the following

reasons. First, the halogenated hydrocarbons are only present in trace quantities (<1 percent by weight) in the content code. Second, although the metals of concern (aluminum and magnesium) occur in minor-to-dominant quantities in the content code, the metals only occur as large pieces of metal and not in powder form, which is more reactive with the halogenated hydrocarbons. Due to the trace quantities of halogenated organics in the content code and the non-powder size of the metal pieces, any reaction that may occur will produce minimal heat. Therefore, this content code is considered to be chemically compatible.

CONTENT CODE RF 118A - GLASS WASTE

Brief Description - Glass waste consists of approximately 50 percent Raschig rings and 50 percent other glass, such as laboratory glassware, process equipment, and glovebox windows.

Chemical Compatibility - Only one potential chemical incompatibility has been identified - the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only very small trace quantities (T3<1ppm) as coatings on glass. The halogenated organics are present only as residual films on the glass and not as free liquids that could react with metals.

CONTENT CODE RF 118B - GLASS WASTE

Brief Description - Glass waste consists of approximately 50 percent Raschig rings and 50 percent other glass, such as laboratory glassware, process equipment, and glovebox windows. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only one potential chemical incompatibility has been identified - the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only very small trace quantities (T3<1ppm) as coatings on glass. The halogenated organics are present only as residual films on the glass and not as free liquids that could react with metals.

CONTENT CODE RF 119A - FILTER WASTE

Brief Description - CH-TRU filter waste consists of absolute dry box filters, high efficiency particulate air (HEPA) filters, filter media, Ful-Flo filters, processed filter media, and plenum filters. The filters are mixed with portland cement to neutralize any residual acid and adsorb any residual liquid.

Chemical Compatibility - The only potential chemical incompatibility is the potential reaction between halogenated hydrocarbons and metals, other elemental and alloys as sheets, rods, drop, moldings, etc. Although this is a potential incompatibility, the probable effects are considered minimal for the same reason outlined in Content Code RF 117A (Metal Waste).

Due to the trace amount of halogenated organics (<1 percent by weight) in the content code and the absence of powdered metals, any reaction that may occur will produce minimal heat. This content code is considered to be chemically compatible.

CONTENT CODE RF 119B - FILTER WASTE

Brief Description - CH-TRU filter waste consists of absolute dry box filters, high efficiency particulate air (HEPA) filters, filter media, Ful-flo filters, processed filter media, and plenum filters. The filters are mixed with portland cement to neutralize any residual acid and adsorb any residual liquid. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - The only potential chemical incompatibility is the potential reaction between halogenated hydrocarbons and metals, other elemental and alloys as sheets, rods, drop, moldings, etc. Although this is a potential incompatibility, the probable effects are considered minimal for the same reason outlined in Content Code RF 117B (Metal Waste).

Due to the trace amount of halogenated organics (<1 percent by weight) in the content code and the absence of powdered metals, any reaction that may occur

will produce minimal heat. This content code is considered to be chemically compatible.

CONTENT CODE RF 121A - ORGANIC SOLID WASTE

Brief Description - CH-TRU organic solid waste refers specifically to large, massive (2-to 4-inch thick) sheets or slabs of solid organic material (e.g., Plexiglass, Benclex, etc.).

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 121B - ORGANIC SOLID WASTE

Brief Description - CH-TRU organic solid waste refers specifically to large, massive (2-to 4-inch thick) sheets or slabs of solid organic material (e.g., Plexiglass, Benclex, etc.). Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only one potential chemical incompatibility has been identified - the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only trace quantities ($T = <1\%$) as coatings on the organic solid materials. The halogenated organics are not present as free liquids that could react with metals present.

CONTENT CODE RF 122A - INORGANIC SOLID WASTE

Brief Description - Inorganic solid waste consists of firebrick and Oil-Dri (clay).

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 122B - INORGANIC SOLID WASTE

Brief Description - Inorganic solid waste consists of firebrick and Oil-Dri (clay). Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Only one potential chemical incompatibility has been identified - the reaction of halogenated organics (Group 17) with metals and other elemental and alloys as sheets, rods, etc. (Group 23). The halogenated organics are present in only trace quantities ($T = <1\%$) as coatings on the inorganic solid materials. The halogenated organics are not present as free liquids that could react with metals present.

CONTENT CODE RF 123A - LEADED RUBBER

Brief Description - Leaded rubber gloves contain layers of Hypalon and lead oxide impregnated neoprene.

Chemical Compatibility - Waste certification procedures specifically identify a possible reaction between concentrated nitric acid and leaded rubber gloves to produce a potential pyrophoric problem. Procedures specify that gloves have to be washed prior to certification as TRU waste. No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 123B - LEADED RUBBER

Brief Description - Leaded rubber gloves contain layers of Hypalon and lead oxide impregnated neoprene. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - Waste certification procedures specifically identify a possible reaction between concentrated nitric acid and leaded rubber gloves to produce a potential pyrophoric problem. Procedures specify that gloves have

to be washed prior to certification as TRU waste. No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 124A - PYROCHEMICAL SALTS

Brief Description - Spent chloride salt from molten salt extraction, electro-refining or direct oxide reduction.

Chemical Compatibility - Four potential chemical incompatibilities have been identified for this waste form. One potential incompatibility is the possible solubilization of toxic metals (Group 24) in caustics (Group 10). The caustic in content code RF 124A is calcium oxide, a solid, which is dispersed in the chloride salts. In this case, solubilization is not possible. In addition, solubilization of toxic metals does not present a transportation concern for TRUPACT-II.

Two other potential incompatibilities are possible reactions between metals and metal compounds, toxic (Group 24) or combustible and flammable materials (Group 101) and water reactive substances (Group 107). Both the metals and combustibles are present only in trace quantities (< 1% by weight). Calcium oxide, the only water reactive substance present, is dispersed in the chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely. This content code is considered to be chemically compatible.

The fourth potential chemical incompatibility is an artifact of the EPA method. Calcium oxide appears in Groups 10 and 107, and is compatible within itself.

CONTENT CODE RF 126A - CEMENTED ORGANIC PROCESS SOLIDS

Brief Description - The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium and americium. The washed resin is mixed with portland cement and water to form a solid mass.

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 126B - CEMENTED ORGANIC PROCESS SOLIDS

Brief Description - The leached and cemented resins consist of anion and cation exchange resins that have been used in the purification and recovery of plutonium and americium. The washed resin is mixed with portland cement and water to form a solid mass. Naturally occurring salt, clay (bentonite) and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - No potential chemical incompatibilities were identified for this content code.

CONTENT CODE RF 127A - COMBINED SOLID ORGANICS AND SOLIDIFIED ORGANICS

Brief Description: The waste consists of paper, rags, cloth, coveralls, plastic, rubber, wood and other similar items. In addition, there are small quantities of metals (e.g., iron, copper, aluminum, stainless steel, tungsten, lead and tantalum) and glass and ceramic waste from recovery, maintenance and laboratory operations. The aqueous effluent from uranium and plutonium processing activities is treated and mixed with approximately 30% portland cement. Naturally occurring salt, clay (bentonite), and wire screen (steel) have been added to the payload containers for experimental purposes.

Chemical Compatibility - One potential chemical incompatibility is the potential reaction between halogenated hydrocarbons and metals, other elemental and alloys as sheets, rods, drop, moldings, etc. Although this is a potential incompatibility, the probable effects are considered minimal for the same reason outlined in Content Code RF 117A (Metal Waste).

Another potential chemical incompatibility was found for this content code. This incompatibility is possible solubilization of toxic metals, which is not a concern since the water from the sludge is fixed in the cemented product and would not be available for reaction. In addition, solubilization of toxic metals

does not present a transportation concern for TRUPACT-II. This content code is considered to be chemically compatible.

2.3 Chemical Compatibility During Hypothetical Accident Conditions

The hypothetical accident conditions for chemical compatibility is defined as a situation where all the individual waste containers within the TRUPACT-II are breached during an accident. The waste from individual waste containers are assumed to intimately mix, but there is no breaching of the TRUPACT-II ICV containment boundary. Under current payload shipping category restrictions, mixing of shipping categories is not allowed. The following analysis of chemical compatibility is, however, extended across all content codes from the site.

The database management program was used to evaluate the potential chemical incompatibility conditions that may occur during an accident. The analysis assumed that mixing of any one content code could occur with any other content code during the accident. A summary of the potential incompatibilities identified is provided in Table 4.

Several potential chemical incompatibilities were identified which included Group 10 or Group 107 from content code RF 124A. As explained in Section 2.2 of this appendix, calcium oxide is the only chemical base (Group 10) present in content code RF 124A in greater than trace quantities. The potential incompatibility (Case 1) between Groups 10 and 107 is invalid because calcium oxide is chemically compatible with itself and this was discussed under content code RF 124A.

In content code RF 124A, the calcium oxide is finely dispersed and immobilized in the fused chloride/fluoride salts from pyrochemical reactions and thus any interaction between the calcium oxide (Group 10 or 107) and any other constituents during hypothetical accidents is highly unlikely and not a chemical compatibility problem (Cases 1 - 5).

The only remaining potential chemical compatibility within the Rocky Flats waste during hypothetical accident conditions is Case 6, the interaction between metals and compounds, toxic (Group 24) and water and mixtures containing water (Group 106).

The potential reaction that may occur is the mixing of metals and metal compounds with water and mixtures containing water. This potential reaction between toxic metals and compounds (RF-117A, B, or 118A, B, or 123A, B, or 127A) and water and mixtures containing water (RF-111A, B, or 114A, B, or 127A) is highly unlikely because liquid waste forms in content codes are prohibited, and only very small amounts of residual water are ever found in the content codes. Even if small amounts of residual solutions are present in the waste, this reaction does not generate any heat or gases. It only dissolves any toxic metals or compounds present in the waste. The presence of toxic metals does not present a transportation concern for TRUPACT-II.

This is the comprehensive chemical compatibility analysis for the waste from Rocky Flats Plant. Similar analyses by waste material type have been made for all ten DOE sites to ensure that only compatible content codes are transported in TRUPACT-II.

TABLE 4
SUMMARY OF POTENTIAL INCOMPATIBLE CONDITIONS
FOR THE HYPOTHETICAL ACCIDENT

Case History No.	Content Codes	Potential Chemical Compatibility Reaction
1	124A	Caustics (Group 10)
	111B, 114B, 115B, 116B, 117A, 117B, 118A, 118B, 119A, 119B, 121B, 122B, 123B, 126B, 127A	Metals, other elemental and alloys as sheets, rods, etc. (Group 23)
2	124A	Caustics (Group 10)
	117A, 117B, 118A, 118B, 123A, 123B, 127A	Metals and Compounds, Toxic (Group 24)
3	111B, 114B, 115B, 116B, 117A, 117B, 118A, 118B, 119A, 119B, 121B, 122B, 123B, 126B, 127A	Metals, other elemental and alloys as sheets, rods, etc. (Group 23)
	124A	Water Reactive Substances (Group 107)
4	117A, 117B, 118A, 118B, 123A, 123B, 127A	Metals and Compounds, Toxic (Group 24)
	124A	Water Reactive Substances (Group 107)
5	111A, 111B, 116A, 116B, 117A, 117B, 118A, 118B, 119A, 119B, 121A, 121B, 122A, 122B, 123A, 123B, 126A, 126B, 127A	Combustible and Flammable Materials (Group 101)
	124A	Water Reactive Substances (Group 107)
6	117A, 117B, 118A, 118B, 123A, 123B, 127A	Metals and Compounds, Toxic (Group 24)
	111A, 111B, 114A, 114B 127A	Water and Mixtures Containing Water (Group 106)

3.0 REFERENCES

- 3.1 Hatayama, H. K., Chen, J.J., de Vera, E.R., Stephens, R.D., Storm, D.L.,
"A Method for Determining the Compatibility of Hazardous Wastes,"
EPA-600/2-80-076, EPA, Cincinnati, Ohio, 1980.
- 3.2 U.S. Environmental Protection Agency, Code of Federal Regulations, Part
190 to 399 U.S. Government Printing Office, Washington, D.C. 1988.
- 3.3 Clements, T. L. Kudera, D. E., "TRU Waste Sampling Program: Volume 1
Waste Characterization," EGG-WM-6503, September 1985.

ATTACHMENT D

CHEMICAL COMPATIBILITY ANALYSIS FOR WASTE FORMS ACROSS ALL SITES

SUMMARY OF CHEMICAL COMPATIBILITY METHODOLOGY

All information for the chemical lists and compatibility study is maintained in the TRUPACT-II database. The chemicals reported by generator sites are classified into reaction groups as defined by the EPA document "A Method for Determining the Compatibility of Hazardous Wastes" (EPA 600/2-80-076, 1980). The chemical lists are printed out directly from the database using a print program. In addition to the information given in the chemical lists, the database contains information on the classification of the content codes by each site into waste types.

A database program was developed to evaluate the chemical compatibility of the waste. Potential incompatibilities can be assessed by content code, by shipping category, by site, by waste type in between sites, or by other parameters. Potential incompatibilities are those defined in the EPA document, which identifies combinations of chemical groups that are incompatible. All such combinations provided in the EPA document have been entered into a reference database to be used in assessing the chemical compatibility of a given list of chemicals. The logic of the program used in evaluating the chemical compatibility in between all content codes is described in detail below.

The program indexes the entire database according to reaction group type. As a first step, the program will locate the first reaction group. All content codes which contain that group are printed, and the group is paired with every other group in the database; each pair of reaction groups is compared to the reference database to check for incompatibility. If a potential incompatibility is found, it is printed out along with the corresponding content codes. After finding all potential incompatibilities in reaction group 1, the program moves on to group 2, then 3, 4, and so on through all groups.

To ensure accuracy, the reference database was printed out and checked against the EPA document for chemical compatibility, and the TRUPACT-II database was printed out and checked against the original lists sent from the generator sites. A trial run of each option in the program was made and hand checked to assure proper functioning of the program.

Chemical Compatibility Analyses by Reaction Group

The chemical compatibility analysis was performed using the methods described in the EPA document "A Method for Determining the Compatibility of Hazardous Wastes" (EPA-600/2-80-076). Content codes are classified as 'incompatible' if the potential exists for any of the following reactions: corrosion, explosion, heat generation, gas generation (flammable gases), pressure build-up (nonflammable gases), or toxic by-product generation.

Each generator and storage site has produced a comprehensive list of all possible chemicals present in their waste. The chemical components found in each waste generation process are determined by examining the process technology, by chemical analysis, or by process flow analysis. Under this system, all chemical inputs into the system are accounted for, even though all of these components may not be part of the waste in every drum or box. For example, generator sites might include both acids and bases in their lists, even though the two groups have been neutralized prior to placement in a payload container.

The chemical concentration levels are reported as either Dominant (>10% by weight), Minor (>1% by weight), and Trace (<1% by weight) amounts. Incompatibilities within and with trace chemicals are not of concern for permanent disposal of waste in the WIPP repository for the following reasons:

- The total amount of traces in a given content code is limited by process technology to less than 5% by weight. Sampling programs show that concentrations of the trace chemicals of concern (volatile organics, for example) are significantly lower than the upper limit of 1% by weight.
- The trace chemicals are usually dispersed in the waste which dilutes concentrations of these materials.
- Trace chemicals that might be incompatible with major and dominant materials/chemicals would have reacted during the waste treatment prior to placement in payload containers.

- Some chemicals are listed in trace quantities in the waste even if they have already reacted prior to placement in drums/boxes.
- The waste is either solidified and immobilized or present in bulk form as solids. This minimizes the possible reactivity of the trace chemicals.

In addition to identification of potential chemical incompatibilities in between all content codes that have entries in the TRUPACT-II Chemical List, the interaction of brine in the repository environment with all shipping content codes has also been evaluated.

The brine that seeps into the WIPP repository is saturated and in equilibrium with the host rock mineralogy [halite (NaCl) and anhydrite (CaSO₄)]. Therefore, the two major components of the brine are water and dissolved salt.

All contact handled transuranic waste is divided into four waste types: I, II, III, and IV [TRUPACT-II Content Codes (TRUCON), Rev. 3, July, 1989, DOE/WIPP 89-004]. In order to evaluate the potential incompatibilities between content codes and the brine, a new waste type (V) has been created in the TRUPACT-II database to simulate the brine. The major inorganic cations (i.e., Na⁺, K⁺, Mg²⁺), anions (i.e., Cl⁻, Br⁻, SO₄²⁻) or any salts that might precipitate (i.e., NaCl, CaSO₄, KCl) from the brine would not be reactive with the waste; only the water that occurs in the brine. Therefore, Waste Type V (brine) contains water in reactive group 106 to simulate the brine. In Table 1, any potential reactions between the brine and waste can be identified by the Waste Type V classification and the name "BRINE" in the content code listing.

A list of all potential incompatibilities identified within and between each reaction group for all content codes, including simulated brine, with chemical lists is attached as Table 1. The table includes incompatibilities involving Minor (M) and Dominant (D) constituents. The resolution of each potential chemical incompatibility is provided below:

Potential Chemical Incompatibility 1: The potential chemical incompatibility between Group 1 (non-oxidizing acids) and Group 4 (alcohols and glycols) would not occur because the non-oxidizing acids in Group 1 are immobilized in a cement matrix and have been neutralized by the cement so are not available to react with Group 4 chemicals. The Group 4 chemicals are also immobilized in the solidified organics.

Potential Chemical Incompatibility 2: This potential incompatibility (between Group 1, non-oxidizing acids, and Group 10, bases) would not occur because the Group 1 non-oxidizing acids are immobilized in a cement matrix and have been neutralized by the cement. The Group 10 base in LL 111A occurs within the same content code as the Group 1 acid; therefore, this neutralization took place prior to cementation. The other content codes that contain Group 10 chemicals are the fused salt matrices which are left over from plutonium processing and would be very slow to dissolve in the repository if any lime was available.

Potential Chemical Incompatibility 3: This potential incompatibility (between Group 1, non-oxidizing acids, and Group 15, inorganic fluorides) would not occur for the same reason given in EX (1) and EX (2). The non-oxidizing acids are neutralized and reacted with cement to form a solid phase.

Potential Chemical Incompatibility 4: As in the case of EX (1), both types of reactive groups are immobilized. The non-oxidizing acids of Group 1 have been neutralized and occur in a non-reactive cemented sludge while the halogenated organics of Group 17 occur in a solidified organics.

Potential Chemical Incompatibility 5: The potentially reactive metal in Group 22 is thorium, which readily oxidizes to thorium oxide. As thorium oxide, the material is non-reactive. In addition, any potential acidic solutions in Group 1 would be neutralized and bound in the cemented waste form. This potential incompatibility would not occur because of the bound nature of the aqueous solutions and the oxidized form of thorium metal (thorium oxide).

Potential Chemical Incompatibility 6: This potential chemical incompatibility between Group 1 (non-oxidizing acids) and Group 23 (metal sheets, rods, etc.) would not occur for the same reason as EX (5).

Potential Chemical Incompatibility 7: This potential incompatibility is the possible reaction between metals and metal compounds, toxic (Group 24) and non-oxidizing acids (Group 1). The non-oxidizing acids (Group 1) were basified prior to cementation and do not exist as free acids in the resulting sludges. Based on the neutralization and immobilization of the acids, reactions are considered highly unlikely. In this case, solubilization is not possible.

Potential Chemical Incompatibility 8: The potential incompatibility between Group 1 (non-oxidizing acids) and Group 32 (organophosphates and phosphothioates) would not occur because the non-oxidizing acids of Group 1 are neutralized and immobilized in a cement matrix and are not available to react with the Group 32 chemicals.

Potential Chemical Incompatibility 9: The potential incompatibility between Group 101 (combustibles) and Group 1 (non-oxidizing acids) would not occur because the non-oxidizing acids are neutralized and cemented into a cement matrix that will not react with the combustibles.

Potential Chemical Incompatibility 10: The potentially strong oxidizing agent of Group 104 (sodium nitrate) was originally mixed into an inorganic aqueous solution that was basified into a sludge and reacted with cement to form a stable solid. The resulting sodium nitrate is reacted and fixed in cement and not available to react with the neutralized and cemented acids in Group 1.

Potential Chemical Incompatibility 11: The potentially reactive non-oxidizing acids in Group 1 and any water or solutions present in Group 106 would not occur because both groups are bound in cemented waste form. This potential incompatibility would not occur because of the bound nature of the solutions.

Potential Chemical Incompatibility 11A: The potentially reactive non-oxidizing acids in Group 1 have been neutralized and immobilized in a cement matrix. Therefore, the non-oxidizing acids would not be available to react with the water in the WIPP brine.

Potential Chemical Incompatibility 12: The non-oxidizing acids in Content Codes Set A were previously reacted with basic solutions to neutralize the acid prior to cementation of the fluids. Therefore, the non-oxidizing acids are not available to react with any water reactive substances (Group 107). Also, the potentially water-reactive substance of Group 107 (aluminum chloride) was originally dissolved in aqueous solutions prior to absorption onto vermiculite. The reacted aluminum chloride is therefore not available as a solid that could interact with the non-oxidizing acids in Content Codes Set A.

Potential Chemical Incompatibility 13: The potential incompatibility between Group 2 (oxidizing acids) and Group 3 (organic acids) would not occur because both types of acid are neutralized and immobilized in a cement matrix prior to any potential interaction.

Potential Chemical Incompatibility 14: The oxidizing acids of Group 2 were basified prior to cementation and do not exist as free acids. The alcohols and glycols of Group 4 are also immobilized as solidified organics and not available to react with the acids. Thus, this potential incompatibility would not occur.

Potential Chemical Incompatibility 15: The oxidizing acids (Group 2) were basified prior to cementation. In the case of LL 111A, the base identified is used to neutralize the acid within that waste prior to cementation. The oxidizing acid in Group 2 is not available to react with the CaO in the other content codes.

Potential Chemical Incompatibility 16: The oxidizing acids (Group 2) were basified prior to cementation. Therefore, no reaction will occur with the solid fluorides in Group 15.

Potential Chemical Incompatibility 17: The oxidizing acids in Group 2 are neutralized prior to cementation and also unavailable to react. Thus, this potential incompatibility would not occur. In addition, the aromatic hydrocarbons in Group 16 are solidified or absorbed on spill-control absorbent pads and would either be unavailable or react very slowly.

Potential Chemical Incompatibility 18: This potential incompatibility would not occur for the same reason as in EX (17).

Potential Chemical Incompatibility 19: The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide. As thorium oxide, the material is non-reactive. In addition, any acidic solutions in Group 2 have been bound in cemented waste materials. This potential incompatibility would not occur because of the bound nature of the solution and the oxidized form of thorium metal.

Potential Chemical Incompatibility 20: The potential chemical incompatibility between Group 23 (metals) and Group 2 (oxidizing acids) would not occur because of the same reasons listed in EX (5).

Potential Chemical Incompatibility 21: The potential chemical incompatibility between Group 2 (oxidizing acids) and Group 24 (toxic metals) would not occur for the reasons given in EX (7).

Potential Chemical Incompatibility 22: The potential chemical incompatibility between hydrocarbons, aliphatic, saturated (Group 29) and oxidizing acids (Group 1) would not occur because of basification of the acid prior to cementation. The acid is no longer available for reaction.

Potential Chemical Incompatibility 23: The potential incompatibility between Group 32 (organophosphates) and oxidizing acids (Group 2) would not occur because of basification of the acid prior to cementation. The acid is no longer available for reaction.

Potential Chemical Incompatibility 24: The potential incompatibility between Group 101 (combustibles) and Group 2 (oxidizing acids) would not occur because the oxidizing agent is basified prior to cementation.

Potential Chemical Incompatibility 25: The oxidizing acids (Group 2) were basified prior to cementation and do not exist as free acids in the resulting cemented waste form. The potential water or solutions in Group 106 have been bound in cemented waste materials. This potential incompatibility would not occur because of the bound nature of the constituents.

Potential Chemical Incompatibility 25A: The oxidizing acids (Group 2) were basified prior to cementation and do not exist as free acids in the sludges. This potential incompatibility with WIPP brine would not occur because the acids are no longer reactive.

Potential Chemical Incompatibility 26: The potential incompatibility between Group 3 (organic acids) and Group 4 (alcohols and glycols) would not occur because the organic acids in Group 3 are immobilized in a cement matrix and not available to react with the Group 4 chemicals. The Group 4 chemicals are also immobilized in the solidified organics.

Potential Chemical Incompatibility 27: The organic acids in Group 3 are immobilized in a cement matrix and are not available to react with the Group 10 chemicals (bases). Thus, this potential chemical incompatibility would not occur.

Potential Chemical Incompatibility 28: The organic acids in Group 3 are immobilized in a cement matrix and are not available to react with the solid fluorides in Group 15. Thus, this potential chemical incompatibility would not occur.

Potential Chemical Incompatibility 29: The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide. As thorium oxide, the material is non-reactive. In addition, any potential solutions in the Group 3 organic acids have been bound in a cemented waste form. This potential incompatibility would not occur because of the bound nature of the aqueous solutions (with organic acids) and the oxidized form of thorium metal (thorium oxide).

Potential Chemical Incompatibility 30: This potential incompatibility is the possible reaction between metals and metal compounds, toxic (Group 24) and organic acids (Group 3). The organic acids (Group 3) were basified prior to cementation and do not exist as free acids in the resulting sludges. Based on the immobilization of the acids, reactions are considered highly unlikely. In this case, solubilization is not possible.

Potential Chemical Incompatibility 31: The potential incompatibility between Group 3 (organic acids) and Group 104 (strong oxidizing agents) would not occur because the potentially strong oxidizing agent (sodium nitrate) has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and is not available for reaction.

Potential Chemical Incompatibility 32: The potential chemical incompatibility between Group 4 (alcohols and glycols) and Group 104 (strong oxidizing agents) would not occur for the same reason given in EX (31). The strong oxidizing agent, sodium nitrate, is immobilized and is not available for reaction.

Potential Chemical Incompatibility 33: The potential incompatibility is the possible reaction between alcohols and glycols (Group 4) and water reactive substances (Group 107). Calcium oxide (water reactive substance) is finely dispersed in the fused chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely. In addition, the Group 4 chemicals are also immobilized in a cemented monolith waste form.

Potential Chemical Incompatibility 34A: The chemical in Group 10 is calcium oxide that is a result of the pyrochemical redox reaction between calcium metal and plutonium oxide. The plutonium oxide is reduced to plutonium metal and the calcium is oxidized to calcium oxide during the reaction. The calcium oxide is fixed in the pyrochemical salt mixture (typically cesium chloride, sodium chloride, calcium fluoride, etc.) and not available for reaction with halogens in the halogenated organics (Group 17). In addition, the halogenated organics are also absorbed and immobilized or solidified.

Potential Chemical Incompatibility 34B: The chemical in Group 10 is basic solutions that are used to neutralize acids and the resulting solution is reacted with cement to form a cemented waste form. Therefore, the base is not available to react. In addition, the halogenated organics are also absorbed and immobilized or solidified.

Potential Chemical Incompatibility 35: The chemical in Group 10, calcium oxide, is fixed in the pyrochemical salt mixture and not available for reaction or basic solutions immobilized in cement. The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide. As, thorium oxide, the material is non-reactive. In addition, reaction between the two solids is not likely to occur.

Potential Chemical Incompatibility 36: The chemical in Group 10, calcium oxide, is fixed in a pyrochemical salt mixture and not available for reaction (or basic solutions immobilized in cement) with metals in Group 23. The metals will not react with the dispersed calcium oxide in the pyrochemical salt residues.

Potential Chemical Incompatibility 37: The potential incompatibility is the possible solubilization of metals and metal compounds, toxic (Group 24) in caustics (Group 10). The caustic in the content codes is calcium oxide, a solid which is dispersed in fused chloride salts, or basic solutions immobilized in cement. In this case, solubilization is not likely to occur.

Potential Chemical Incompatibility 38: The caustic in Group 10 is calcium oxide, a solid which is dispersed in fused chloride salts or basic solutions immobilized in cement. No reaction with the organophosphates in Group 32 is likely to occur.

Potential Chemical Incompatibility 39: The bases in Group 10 are either previously reacted with cement to form a stable solid or occur as a dispersed solid (calcium oxide) fixed in a pyrochemical salt matrix. The potentially water-reactive substances in Group 107 were originally dissolved in aqueous solutions prior to absorption onto vermiculite and are therefore not available to interact with the bases in Group 10. In some cases (e.g. RF 124A), the base (Group 10) and the water-reactive substances (Group 107) are the same chemical, CaO. This is not an incompatibility, but an artifact of the compatibility evaluation program.

Potential Chemical Incompatibility 40: The potential chemical incompatibility between Group 15 and Group 107 will not occur. The solid fluorides in Group 15 form part of the pyrochemical salt matrix that the calcium oxide (Group 107) occurs in after the plutonium reduction. Therefore, these salts always occur with each other and are compatible within a content code and in between content codes.

Potential Chemical Incompatibility 41: The potential incompatibility between Group 16 (aromatic hydrocarbons) and Group 104 (strong oxidizing agents) would not occur because the potentially strong oxidizing agent, sodium nitrate, has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and not available for reaction. In addition, the Group 16 chemicals are in an immobilized or solidified form.

Potential Chemical Incompatibility 42: The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide, especially in the form of fine particles. As thorium oxide, the material is non-reactive. In addition, any potential solutions in Group 17 (halogenated organics) have been bound in solidified organics. This potential incompatibility would not occur because of the oxidized form of the thorium metal plus the immobilization of the halogenated organics.

Potential Chemical Incompatibility 43: The halogenated organics (Group 17) are immobilized through absorption on sorbent materials or solidification with calcium silicates or gypsum-base processes. The metals (Group 23) will not react with the immobilized halogenated organics.

Potential Chemical Incompatibility 44: The potentially strong oxidizing agent in Group 104 (sodium nitrate) was originally mixed into an inorganic aqueous solution that was basified into a sludge and reacted with cement to form a stable solid. The resulting sodium nitrate is reacted and fixed in cement and not available to react with the halogenated organics, which are also immobilized or solidified.

Potential Chemical Incompatibility 45: The water reactive substance in Group 107 is calcium oxide. Calcium oxide is finely dispersed in the fused chloride salts and thus, immobilized. The halogenated organics in Group 17 are also immobilized or solidified.

Potential Chemical Incompatibility 46: The potential incompatibility between Group 22 (metals) and Group 104 (strong oxidizing agents) would not occur because the potentially strong oxidizing agent, sodium nitrate, has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and not available for reaction.

Potential Chemical Incompatibility 47: The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide. As thorium oxide, the material is non-reactive. In addition, any potential water or solutions in Group 106 have been bound in cemented waste materials. This potential chemical incompatibility would not occur because of the bound nature of the aqueous solutions and the oxidized form of the thorium metal.

Potential Chemical Incompatibility 47A: The rapid conversion of thorium (Group 22) to thorium oxide makes the material non-reactive. Therefore, no potential incompatibility would occur between the Group 22 compound and the WIPP brine (Group 106).

Potential Chemical Incompatibility 48: The potentially reactive metal in Group 22 is thorium which readily oxidizes to thorium oxide. The water reactive substance in Group 107 is calcium oxide. These two solids will not react.

Potential Chemical Incompatibility 49: This potential chemical incompatibility between Group 23 (metals) and Group 104 (strong oxidizing agents) would not occur because the potentially strong oxidizing agent, sodium nitrate, has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and not available for reaction.

Potential Chemical Incompatibility 50: The potential incompatibility is identical to that described in number 36 above. The solid base (calcium oxide) or the dissolved aluminum chloride in aqueous solution that occurs in Group 107 also occurs in Group 10. Therefore, the potential reaction between Group 10 and Group 23 EX (36) is the same as the potential reaction between Group 23 and Group 107. For the same reasons described above, this potential incompatibility would not occur.

Potential Chemical Incompatibility 51: The aqueous solutions in Group 106 are present only in immobilized/cemented form and are not readily available for reaction with the toxic metals in Group 24.

Potential Chemical Incompatibility 51A: The metals and metal compounds, toxic (Group 24) could react to solubilize in the WIPP brine (Group 106). Even if the metals dissolve, the modeling in the No Migration Variance Petition has demonstrated that these solutions would not migrate to the unit boundary in 10,000 years.

Potential Chemical Incompatibility 52: This potential chemical incompatibility is the possible reaction between metals and metal compounds, toxic (Group 24) and water reactive substances (Group 107). Calcium oxide is finely dispersed in the fused chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely. In this case, solubilization is not possible.

Potential Chemical Incompatibility 53: The potential chemical incompatibility between Group 29 (saturated hydrocarbons) and Group 104 (strong oxidizing agents) would not occur. The strong oxidizing agent, sodium nitrate, has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and not available for reaction. The Group 29 chemicals are also in solidified form.

Potential Chemical Incompatibility 54: The potentially water reactive substance in Group 107, aluminum chloride, was originally dissolved in the aqueous solutions prior to absorption onto vermiculite. The reacted aluminum chloride is therefore not available as a solid that could interact with the saturated hydrocarbons in Group 29. In addition, the saturated hydrocarbons have been solidified.

Potential Chemical Incompatibility 55: The potential incompatibility between Group 32 (organophosphates) and Group 104 (strong oxidizing agents) would not occur for the reason mentioned above in EX (53).

Potential Chemical Incompatibility 56: The potential incompatibility between Group 32 (organophosphates) and Group 107 (water reactive substances) would not occur for the reasons given above in EX (54).

Potential Chemical Incompatibility 57: The potential incompatibility between Group 101 (combustibles) and Group 104 (strong oxidizing agents) would not occur. The strong oxidizing agent, sodium nitrate, has been previously dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Therefore, the sodium nitrate is immobilized and not available for reaction.

Potential Chemical Incompatibility 58: The potential chemical incompatibility between Group 101 (combustibles) and Group 107 (water reactive substance - calcium oxide solids or aluminum chloride dissolved in aqueous solution) will not occur. The combustibles and the calcium oxide would not react because of the solid nature of the calcium oxide and its occurrence as finely dispersed material in the pyrochemical matrix. The aluminum chloride is not reactive after dissolution in water.

Potential Chemical Incompatibility 59: Both the sodium nitrate in Group 104 and the aluminum chloride in Group 107 have been previously dissolved in aqueous solutions and fixed in cement (sodium nitrate - Group 104). Therefore, there would be no interaction between these chemicals.

TABLE 1
LIST OF POTENTIAL INCOMPATIBILITIES

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	1	M	I.1	ID 112A	4	M	IV.1	(1)
LL 111A	1	M	I.1	RF 112A	4	M	IV.1	(1)
LL 111A	1	M	I.1	ID 124A	10	M	II.2	(2)
LL 111A	1	M	I.1	LA 124A	10	D	II.2	(2)
LL 111A	1	M	I.1	LL 111A	10	M	I.1	(2)
LL 111A	1	M	I.1	LL 124A	10	M	II.2	(2)
LL 111A	1	M	I.1	RF 124A	10	M	II.2	(2)
LL 111A	1	M	I.1	LA 124A	15	D	II.2	(3)
LL 111A	1	M	I.1	LL 124A	15	D	II.2	(3)
LL 111A	1	M	I.1	ID 112A	17	D	IV.1	(4)
LL 111A	1	M	I.1	ID 212A	17	D	IV.1	(4)
LL 111A	1	M	I.1	RF 112A	17	D	IV.1	(4)
LL 111A	1	M	I.1	RH 112A	17	D	IV.1	(4)
LL 111A	1	M	I.1	MD 111A	22	M	I.2	(5)
LL 111A	1	M	I.1	MD 111B	22	M	I.2	(5)
LL 111A	1	M	I.1	AE 116A	23	D	III.1	(6)
LL 111A	1	M	I.1	AE 116A	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 111B	23	M	I.2	(6)
LL 111A	1	M	I.1	ID 111C	23	M	I.2	(6)
LL 111A	1	M	I.1	ID 115B	23	M	II.1	(6)
LL 111A	1	M	I.1	ID 115C	23	M	II.1	(6)
LL 111A	1	M	I.1	ID 116B	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 116C	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 117A	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 117B	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 117C	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 118A	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 118B	23	M	II.1	(6)
LL 111A	1	M	I.1	ID 118C	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 119A	23	D	III.1	(6)
LL 111A	1	M	I.1	ID 119B	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 119C	23	D	III.1	(6)
LL 111A	1	M	I.1	ID 121B	23	D	III.1	(6)
LL 111A	1	M	I.1	ID 121C	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 122B	23	M	II.1	(6)
LL 111A	1	M	I.1	ID 122C	23	M	II.1	(6)
LL 111A	1	M	I.1	ID 123B	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 123C	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 125A	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 126B	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 126C	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 127A	23	D	III.1	(6)
LL 111A	1	M	I.1	ID 127B	23	D	III.1	(6)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	1	M	I.1	ID 217A	23	D	II.2	(6)
LL 111A	1	M	I.1	ID 217B	23	D	II.1	(6)
LL 111A	1	M	I.1	ID 219A	23	M	III.1	(6)
LL 111A	1	M	I.1	ID 221A	23	D	III.1	(6)
LL 111A	1	M	I.1	ID 222A	23	M	II.2	(6)
LL 111A	1	M	I.1	ID 224A	23	M	II.2	(6)
LL 111A	1	M	I.1	ID 225A	23	M	III.1	(6)
LL 111A	1	M	I.1	LA 117A	23	M	II.1	(6)
LL 111A	1	M	I.1	LA 118A	23	M	II.2	(6)
LL 111A	1	M	I.1	LA 123A	23	D	III.1	(6)
LL 111A	1	M	I.1	LA 124A	23	M	II.2	(6)
LL 111A	1	M	I.1	LA 125A	23	D	III.1	(6)
LL 111A	1	M	I.1	LL 116A	23	M	III.1	(6)
LL 111A	1	M	I.1	LL 124A	23	M	II.2	(6)
LL 111A	1	M	I.1	MD 111A	23	M	I.2	(6)
LL 111A	1	M	I.1	MD 117A	23	D	II.1	(6)
LL 111A	1	M	I.1	OR 125A	23	M	III.1	(6)
LL 111A	1	M	I.1	OR 125B	23	D	III.1	(6)
LL 111A	1	M	I.1	RF 117A	23	D	II.1	(6)
LL 111A	1	M	I.1	RF 118A	23	D	II.1	(6)
LL 111A	1	M	I.1	RF 119A	23	D	III.1	(6)
LL 111A	1	M	I.1	RF 127A	23	D	III.1	(6)
LL 111A	1	M	I.1	RH 123A	23	D	III.1	(6)
LL 111A	1	M	I.1	RH 125A	23	D	III.1	(6)
LL 111A	1	M	I.1	SR 116A	23	D	III.1	(6)
LL 111A	1	M	I.1	SR 122A	23	D	II.1	(6)
LL 111A	1	M	I.1	AE 116A	24	M	III.1	(7)
LL 111A	1	M	I.1	ID 117A	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 117B	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 117C	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 118A	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 118C	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 121B	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 123A	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 123B	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 123C	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 125A	24	M	III.1	(7)
LL 111A	1	M	I.1	ID 127A	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 127B	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 217B	24	D	II.1	(7)
LL 111A	1	M	I.1	ID 221A	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 223A	24	D	III.1	(7)
LL 111A	1	M	I.1	ID 225A	24	M	III.1	(7)
LL 111A	1	M	I.1	LA 123A	24	M	III.1	(7)
LL 111A	1	M	I.1	LA 124A	24	M	II.2	(7)
LL 111A	1	M	I.1	LA 125A	24	D	III.1	(7)
LL 111A	1	M	I.1	MD 111A	24	M	I.2	(7)
LL 111A	1	M	I.1	RF 117A	24	D	II.1	(7)
LL 111A	1	M	I.1	RF 118A	24	D	II.1	(7)
LL 111A	1	M	I.1	RF 123A	24	D	III.1	(7)
LL 111A	1	M	I.1	RF 127A	24	D	III.1	(7)
LL 111A	1	M	I.1	RH 123A	24	D	III.1	(7)
LL 111A	1	M	I.1	RH 125A	24	M	III.1	(7)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	1	M	I.1	SR 116A	24	D	III.1	(7)
LL 111A	1	M	I.1	SR 122A	24	D	II.1	(7)
LL 111A	1	M	I.1	LA 126A	32	M	III.1	(8)
LL 111A	1	M	I.1	RH 112A	32	D	IV.1	(8)
LL 111A	1	M	I.1	SR 116A	32	M	III.1	(8)
LL 111A	1	M	I.1	AE 116A	101	M	III.1	(9)
LL 111A	1	M	I.1	AE 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 111A	101	M	I.2	(9)
LL 111A	1	M	I.1	ID 111C	101	M	I.2	(9)
LL 111A	1	M	I.1	ID 112A	101	D	IV.1	(9)
LL 111A	1	M	I.1	ID 115B	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 116B	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 116C	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 117A	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 117B	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 117C	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 118A	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 118B	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 118C	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 119A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 119B	101	M	III.1	(9)
LL 111A	1	M	I.1	ID 119C	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 121A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 121B	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 121C	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 122A	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 122B	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 122C	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 123A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 123B	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 123C	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 125A	101	M	III.1	(9)
LL 111A	1	M	I.1	ID 126A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 126B	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 126C	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 127A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 127B	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 212A	101	D	IV.1	(9)
LL 111A	1	M	I.1	ID 215A	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 216A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 217A	101	M	II.2	(9)
LL 111A	1	M	I.1	ID 217B	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 218A	101	M	II.1	(9)
LL 111A	1	M	I.1	ID 219A	101	M	III.1	(9)
LL 111A	1	M	I.1	ID 221A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 222A	101	M	II.2	(9)
LL 111A	1	M	I.1	ID 223A	101	D	III.1	(9)
LL 111A	1	M	I.1	ID 224A	101	M	II.2	(9)
LL 111A	1	M	I.1	ID 225A	101	M	III.1	(9)
LL 111A	1	M	I.1	ID 225B	101	M	III.1	(9)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	1	M	I.1	ID 226A	101	D	III.1	(9)
LL 111A	1	M	I.1	LA 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	LA 123A	101	D	III.1	(9)
LL 111A	1	M	I.1	LA 125A	101	D	III.1	(9)
LL 111A	1	M	I.1	LA 126A	101	M	III.1	(9)
LL 111A	1	M	I.1	LL 116A	101	M	III.1	(9)
LL 111A	1	M	I.1	LL 124A	101	M	II.2	(9)
LL 111A	1	M	I.1	MD 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	OR 125A	101	D	III.1	(9)
LL 111A	1	M	I.1	OR 125B	101	M	III.1	(9)
LL 111A	1	M	I.1	RF 111A	101	M	I.2	(9)
LL 111A	1	M	I.1	RF 112A	101	D	IV.1	(9)
LL 111A	1	M	I.1	RF 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	RF 117A	101	M	II.1	(9)
LL 111A	1	M	I.1	RF 118A	101	M	II.1	(9)
LL 111A	1	M	I.1	RF 119A	101	D	III.1	(9)
LL 111A	1	M	I.1	RF 121A	101	D	III.1	(9)
LL 111A	1	M	I.1	RF 122A	101	M	II.1	(9)
LL 111A	1	M	I.1	RF 123A	101	D	III.1	(9)
LL 111A	1	M	I.1	RF 126A	101	D	III.1	(9)
LL 111A	1	M	I.1	RF 127A	101	D	III.1	(9)
LL 111A	1	M	I.1	RH 112A	101	D	IV.1	(9)
LL 111A	1	M	I.1	RH 114A	101	D	I.3	(9)
LL 111A	1	M	I.1	RH 123A	101	D	III.1	(9)
LL 111A	1	M	I.1	RH 125A	101	D	III.1	(9)
LL 111A	1	M	I.1	SR 116A	101	D	III.1	(9)
LL 111A	1	M	I.1	SR 122A	101	D	II.1	(9)
LL 111A	1	M	I.1	LA 114A	104	D	I.1	(10)
LL 111A	1	M	I.1	LA 126A	104	M	III.1	(10)
LL 111A	1	M	I.1	ID 111A	106	D	I.2	(11)
LL 111A	1	M	I.1	ID 111B	106	D	I.2	(11)
LL 111A	1	M	I.1	ID 111C	106	D	I.2	(11)
LL 111A	1	M	I.1	ID 113A	106	M	IV.1	(11)
LL 111A	1	M	I.1	ID 127A	106	D	III.1	(11)
LL 111A	1	M	I.1	ID 127B	106	D	III.1	(11)
LL 111A	1	M	I.1	ID 211A	106	D	I.2	(11)
LL 111A	1	M	I.1	ID 213A	106	D	IV.1	(11)
LL 111A	1	M	I.1	RF 111A	106	D	I.2	(11)
LL 111A	1	M	I.1	RF 113A	106	M	IV.1	(11)
LL 111A	1	M	I.1	RF 127A	106	D	III.1	(11)
LL 111A	1	M	I.1	BRINE	106	D	V	(11A)
LL 111A	1	M	I.1	AE 111A	107	M	I.1	(12)
LL 111A	1	M	I.1	ID 124A	107	M	II.2	(12)
LL 111A	1	M	I.1	RF 124A	107	M	II.2	(12)
LL 111A	2	M	I.1	ID 213A	3	M	IV.1	(13)
LL 111A	2	M	I.1	ID 112A	4	M	IV.1	(14)
LL 111A	2	M	I.1	RF 112A	4	M	IV.1	(14)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	2	M	I.1	ID 124A	10	M	II.2	(15)
LL 111A	2	M	I.1	LA 124A	10	D	II.2	(15)
LL 111A	2	M	I.1	LL 111A	10	M	I.1	(15)
LL 111A	2	M	I.1	LL 124A	10	M	II.2	(15)
LL 111A	2	M	I.1	RF 124A	10	M	II.2	(15)
LL 111A	2	M	I.1	LA 124A	15	D	II.2	(16)
LL 111A	2	M	I.1	LL 124A	15	D	II.2	(16)
LL 111A	2	M	I.1	ID 112A	16	M	IV.1	(17)
LL 111A	2	M	I.1	RF 112A	16	M	IV.1	(17)
LL 111A	2	M	I.1	RH 112A	16	D	IV.1	(17)
LL 111A	2	M	I.1	ID 112A	17	D	IV.1	(18)
LL 111A	2	M	I.1	ID 212A	17	D	IV.1	(18)
LL 111A	2	M	I.1	RF 112A	17	D	IV.1	(18)
LL 111A	2	M	I.1	RH 112A	17	D	IV.1	(18)
LL 111A	2	M	I.1	MD 111A	22	M	I.2	(19)
LL 111A	2	M	I.1	MD 111B	22	M	I.2	(19)
LL 111A	2	M	I.1	AE 116A	23	D	III.1	(20)
LL 111A	2	M	I.1	AE 116A	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 111B	23	M	I.2	(20)
LL 111A	2	M	I.1	ID 111C	23	M	I.2	(20)
LL 111A	2	M	I.1	ID 115B	23	M	II.1	(20)
LL 111A	2	M	I.1	ID 115C	23	M	II.1	(20)
LL 111A	2	M	I.1	ID 116B	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 116C	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 117A	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 117B	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 117C	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 118A	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 118B	23	M	II.1	(20)
LL 111A	2	M	I.1	ID 118C	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 119A	23	D	III.1	(20)
LL 111A	2	M	I.1	ID 119B	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 119C	23	D	III.1	(20)
LL 111A	2	M	I.1	ID 121B	23	D	III.1	(20)
LL 111A	2	M	I.1	ID 121C	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 122B	23	M	II.1	(20)
LL 111A	2	M	I.1	ID 122C	23	M	II.1	(20)
LL 111A	2	M	I.1	ID 123B	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 123C	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 125A	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 126B	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 126C	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 127A	23	D	III.1	(20)
LL 111A	2	M	I.1	ID 127B	23	D	III.1	(20)
LL 111A	2	M	I.1	ID 217A	23	D	II.2	(20)
LL 111A	2	M	I.1	ID 217B	23	D	II.1	(20)
LL 111A	2	M	I.1	ID 219A	23	M	III.1	(20)
LL 111A	2	M	I.1	ID 221A	23	D	III.1	(20)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	2	M	I.1	ID 222A	23	M	II.2	(20)
LL 111A	2	M	I.1	ID 224A	23	M	II.2	(20)
LL 111A	2	M	I.1	ID 225A	23	M	III.1	(20)
LL 111A	2	M	I.1	LA 117A	23	M	II.1	(20)
LL 111A	2	M	I.1	LA 118A	23	M	II.2	(20)
LL 111A	2	M	I.1	LA 123A	23	D	III.1	(20)
LL 111A	2	M	I.1	LA 124A	23	M	II.2	(20)
LL 111A	2	M	I.1	LA 125A	23	D	III.1	(20)
LL 111A	2	M	I.1	LL 116A	23	M	III.1	(20)
LL 111A	2	M	I.1	LL 124A	23	M	II.2	(20)
LL 111A	2	M	I.1	MD 111A	23	M	I.2	(20)
LL 111A	2	M	I.1	MD 117A	23	D	II.1	(20)
LL 111A	2	M	I.1	OR 125A	23	M	III.1	(20)
LL 111A	2	M	I.1	OR 125B	23	D	III.1	(20)
LL 111A	2	M	I.1	RF 117A	23	D	II.1	(20)
LL 111A	2	M	I.1	RF 118A	23	D	II.1	(20)
LL 111A	2	M	I.1	RF 119A	23	D	III.1	(20)
LL 111A	2	M	I.1	RF 127A	23	D	III.1	(20)
LL 111A	2	M	I.1	RH 123A	23	D	III.1	(20)
LL 111A	2	M	I.1	RH 125A	23	D	III.1	(20)
LL 111A	2	M	I.1	SR 116A	23	D	III.1	(20)
LL 111A	2	M	I.1	SR 122A	23	D	II.1	(20)
LL 111A	2	M	I.1	AE 116A	24	M	III.1	(21)
LL 111A	2	M	I.1	ID 117A	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 117B	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 117C	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 118A	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 118C	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 121B	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 123A	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 123B	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 123C	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 125A	24	M	III.1	(21)
LL 111A	2	M	I.1	ID 127A	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 127B	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 217B	24	D	II.1	(21)
LL 111A	2	M	I.1	ID 221A	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 223A	24	D	III.1	(21)
LL 111A	2	M	I.1	ID 225A	24	M	III.1	(21)
LL 111A	2	M	I.1	LA 123A	24	M	III.1	(21)
LL 111A	2	M	I.1	LA 124A	24	M	II.2	(21)
LL 111A	2	M	I.1	LA 125A	24	D	III.1	(21)
LL 111A	2	M	I.1	MD 111A	24	M	I.2	(21)
LL 111A	2	M	I.1	RF 117A	24	D	II.1	(21)
LL 111A	2	M	I.1	RF 118A	24	D	II.1	(21)
LL 111A	2	M	I.1	RF 123A	24	D	III.1	(21)
LL 111A	2	M	I.1	RF 127A	24	D	III.1	(21)
LL 111A	2	M	I.1	RH 123A	24	D	III.1	(21)
LL 111A	2	M	I.1	RH 125A	24	M	III.1	(21)
LL 111A	2	M	I.1	SR 116A	24	D	III.1	(21)
LL 111A	2	M	I.1	SR 122A	24	D	II.1	(21)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	2	M	I.1	LA 126A	29	M	III.1	(22)
LL 111A	2	M	I.1	LA 126A	32	M	III.1	(23)
LL 111A	2	M	I.1	RH 112A	32	D	IV.1	(23)
LL 111A	2	M	I.1	SR 116A	32	M	III.1	(23)
LL 111A	2	M	I.1	AE 116A	101	M	III.1	(24)
LL 111A	2	M	I.1	AE 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 111A	101	M	I.2	(24)
LL 111A	2	M	I.1	ID 111C	101	M	I.2	(24)
LL 111A	2	M	I.1	ID 112A	101	D	IV.1	(24)
LL 111A	2	M	I.1	ID 115B	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 116B	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 116C	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 117A	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 117B	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 117C	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 118A	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 118B	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 118C	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 119A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 119B	101	M	III.1	(24)
LL 111A	2	M	I.1	ID 119C	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 121A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 121B	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 121C	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 122A	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 122B	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 122C	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 123A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 123B	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 123C	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 125A	101	M	III.1	(24)
LL 111A	2	M	I.1	ID 126A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 126B	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 126C	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 127A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 127B	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 212A	101	D	IV.1	(24)
LL 111A	2	M	I.1	ID 215A	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 216A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 217A	101	M	II.2	(24)
LL 111A	2	M	I.1	ID 217B	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 218A	101	M	II.1	(24)
LL 111A	2	M	I.1	ID 219A	101	M	III.1	(24)
LL 111A	2	M	I.1	ID 221A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 222A	101	M	II.2	(24)
LL 111A	2	M	I.1	ID 223A	101	D	III.1	(24)
LL 111A	2	M	I.1	ID 224A	101	M	II.2	(24)
LL 111A	2	M	I.1	ID 225A	101	M	III.1	(24)
LL 111A	2	M	I.1	ID 225B	101	M	III.1	(24)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	2	M	I.1	ID 226A	101	D	III.1	(24)
LL 111A	2	M	I.1	LA 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	LA 123A	101	D	III.1	(24)
LL 111A	2	M	I.1	LA 125A	101	D	III.1	(24)
LL 111A	2	M	I.1	LA 126A	101	M	III.1	(24)
LL 111A	2	M	I.1	LL 116A	101	M	III.1	(24)
LL 111A	2	M	I.1	LL 124A	101	M	II.2	(24)
LL 111A	2	M	I.1	MD 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	OR 125A	101	D	III.1	(24)
LL 111A	2	M	I.1	OR 125B	101	M	III.1	(24)
LL 111A	2	M	I.1	RF 111A	101	M	I.2	(24)
LL 111A	2	M	I.1	RF 112A	101	D	IV.1	(24)
LL 111A	2	M	I.1	RF 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	RF 117A	101	M	II.1	(24)
LL 111A	2	M	I.1	RF 118A	101	M	II.1	(24)
LL 111A	2	M	I.1	RF 119A	101	D	III.1	(24)
LL 111A	2	M	I.1	RF 121A	101	D	III.1	(24)
LL 111A	2	M	I.1	RF 122A	101	M	II.1	(24)
LL 111A	2	M	I.1	RF 123A	101	D	III.1	(24)
LL 111A	2	M	I.1	RF 126A	101	D	III.1	(24)
LL 111A	2	M	I.1	RF 127A	101	D	III.1	(24)
LL 111A	2	M	I.1	RH 112A	101	D	IV.1	(24)
LL 111A	2	M	I.1	RH 114A	101	D	I.3	(24)
LL 111A	2	M	I.1	RH 123A	101	D	III.1	(24)
LL 111A	2	M	I.1	RH 125A	101	D	III.1	(24)
LL 111A	2	M	I.1	SR 116A	101	D	III.1	(24)
LL 111A	2	M	I.1	SR 122A	101	D	II.1	(24)
LL 111A	2	M	I.1	ID 111A	106	D	I.2	(25)
LL 111A	2	M	I.1	ID 111B	106	D	I.2	(25)
LL 111A	2	M	I.1	ID 111C	106	D	I.2	(25)
LL 111A	2	M	I.1	ID 113A	106	M	IV.1	(25)
LL 111A	2	M	I.1	ID 127A	106	D	III.1	(25)
LL 111A	2	M	I.1	ID 127B	106	D	III.1	(25)
LL 111A	2	M	I.1	ID 211A	106	D	I.2	(25)
LL 111A	2	M	I.1	ID 213A	106	D	IV.1	(25)
LL 111A	2	M	I.1	RF 111A	106	D	I.2	(25)
LL 111A	2	M	I.1	RF 113A	106	M	IV.1	(25)
LL 111A	2	M	I.1	RF 127A	106	D	III.1	(25)
LL 111A	2	M	I.1	BRINE	106	D	V	(25A)
ID 213A	3	M	IV.1	ID 112A	4	M	IV.1	(26)
ID 213A	3	M	IV.1	RF 112A	4	M	IV.1	(26)
ID 213A	3	M	IV.1	ID 124A	10	M	II.2	(27)
ID 213A	3	M	IV.1	LA 124A	10	D	II.2	(27)
ID 213A	3	M	IV.1	LL 111A	10	M	I.1	(27)
ID 213A	3	M	IV.1	LL 124A	10	M	II.2	(27)
ID 213A	3	M	IV.1	RF 124A	10	M	II.2	(27)
ID 213A	3	M	IV.1	LA 124A	15	D	II.2	(28)
ID 213A	3	M	IV.1	LL 124A	15	D	II.2	(28)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 213A	3	M	IV.1	MD 111A	22	M	I.2	(29)
ID 213A	3	M	IV.1	MD 111B	22	M	I.2	(29)
ID 213A	3	M	IV.1	AE 116A	24	M	III.1	(30)
ID 213A	3	M	IV.1	ID 117A	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 117B	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 117C	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 118A	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 118C	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 121B	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 123A	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 123B	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 123C	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 125A	24	M	III.1	(30)
ID 213A	3	M	IV.1	ID 127A	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 127B	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 217B	24	D	II.1	(30)
ID 213A	3	M	IV.1	ID 221A	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 223A	24	D	III.1	(30)
ID 213A	3	M	IV.1	ID 225A	24	M	III.1	(30)
ID 213A	3	M	IV.1	LA 123A	24	M	III.1	(30)
ID 213A	3	M	IV.1	LA 124A	24	M	II.2	(30)
ID 213A	3	M	IV.1	LA 125A	24	D	III.1	(30)
ID 213A	3	M	IV.1	MD 111A	24	M	I.2	(30)
ID 213A	3	M	IV.1	RF 117A	24	D	II.1	(30)
ID 213A	3	M	IV.1	RF 118A	24	D	II.1	(30)
ID 213A	3	M	IV.1	RF 127A	24	D	III.1	(30)
ID 213A	3	M	IV.1	RF 123A	24	D	III.1	(30)
ID 213A	3	M	IV.1	RH 123A	24	D	III.1	(30)
ID 213A	3	M	IV.1	RH 125A	24	M	III.1	(30)
ID 213A	3	M	IV.1	SR 116A	24	D	III.1	(30)
ID 213A	3	M	IV.1	SR 122A	24	D	II.1	(30)
ID 213A	3	M	IV.1	LA 114A	104	D	I.1	(31)
ID 213A	3	M	IV.1	LA 126A	104	M	III.1	(31)
ID 112A	4	M	IV.1	LA 114A	104	D	I.1	(32)
ID 112A	4	M	IV.1	LA 126A	104	M	III.1	(32)
RF 112A	4	M	IV.1	LA 114A	104	D	I.1	(32)
RF 112A	4	M	IV.1	LA 126A	104	M	III.1	(32)
ID 112A	4	M	IV.1	AE 111A	107	M	I.1	(33)
ID 112A	4	M	IV.1	ID 124A	107	M	II.2	(33)
ID 112A	4	M	IV.1	RF 124A	107	M	II.2	(33)
RF 112A	4	M	IV.1	AE 111A	107	M	I.1	(33)
RF 112A	4	M	IV.1	ID 124A	107	M	II.2	(33)
RF 112A	4	M	IV.1	RF 124A	107	M	II.2	(33)
ID 124A	10	M	II.2	ID 112A	17	D	IV.1	(34A)
ID 124A	10	M	II.2	ID 212A	17	D	IV.1	(34A)
ID 124A	10	M	II.2	RF 112A	17	D	IV.1	(34A)
LA 124A	10	D	II.2	ID 112A	17	D	IV.1	(34A)
LA 124A	10	D	II.2	ID 212A	17	D	IV.1	(34A)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LA 124A	10	D	II.2	RF 112A	17	D	IV.1	(34A)
LA 124A	10	D	II.2	RH 112A	17	D	IV.1	(34A)
LL 124A	10	M	II.2	ID 112A	17	D	IV.1	(34A)
RF 124A	10	M	II.2	ID 212A	17	D	IV.1	(34A)
RF 124A	10	M	II.2	RF 112A	17	D	IV.1	(34A)
RF 124A	10	M	II.2	RH 112A	17	D	IV.1	(34A)
RF 124A	10	M	II.2	ID 112A	17	D	IV.1	(34A)
LL 124A	10	M	II.2	ID 212A	17	D	IV.1	(34A)
LL 124A	10	M	II.2	RF 112A	17	D	IV.1	(34A)
LL 124A	10	M	II.2	RH 112A	17	D	IV.1	(34A)
LL 111A	10	M	I.1	ID 112A	17	D	IV.1	(34B)
LL 111A	10	M	I.1	ID 212A	17	D	IV.1	(34B)
LL 111A	10	M	I.1	RF 112A	17	D	IV.1	(34B)
LL 111A	10	M	I.1	RH 112A	17	D	IV.1	(34B)
ID 124A	10	M	II.2	MD 111A	22	M	I.2	(35)
ID 124A	10	M	II.2	MD 111B	22	M	I.2	(35)
LA 124A	10	D	II.2	MD 111A	22	M	I.2	(35)
LA 124A	10	D	II.2	MD 111B	22	M	I.2	(35)
LL 111A	10	M	I.1	MD 111A	22	M	I.2	(35)
LL 111A	10	M	I.1	MD 111B	22	M	I.2	(35)
RF 124A	10	M	II.2	MD 111A	22	M	I.2	(35)
RF 124A	10	M	II.2	MD 111B	22	M	I.2	(35)
LL 124A	10	M	II.2	MD 111A	22	M	I.2	(35)
LL 124A	10	M	II.2	MD 111B	22	M	I.2	(35)
ID 124A	10	M	II.2	AE 116A	23	D	III.1	(36)
ID 124A	10	M	II.2	AE 116A	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 111B	23	M	I.2	(36)
ID 124A	10	M	II.2	ID 111C	23	M	I.2	(36)
ID 124A	10	M	II.2	ID 115B	23	M	II.1	(36)
ID 124A	10	M	II.2	ID 115C	23	M	II.1	(36)
ID 124A	10	M	II.2	ID 116B	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 116C	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 117A	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 117B	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 117C	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 118A	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 118B	23	M	II.1	(36)
ID 124A	10	M	II.2	ID 118C	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 119A	23	D	III.1	(36)
ID 124A	10	M	II.2	ID 119B	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 119C	23	D	III.1	(36)
ID 124A	10	M	II.2	ID 121B	23	D	III.1	(36)
ID 124A	10	M	II.2	ID 121C	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 122B	23	M	II.1	(36)
ID 124A	10	M	II.2	ID 122C	23	M	II.1	(36)
ID 124A	10	M	II.2	ID 123B	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 123C	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 125A	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 126B	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 126C	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 127A	23	D	III.1	(36)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 124A	10	M	II.2	ID 127B	23	D	III.1	(36)
ID 124A	10	M	II.2	ID 217A	23	D	II.2	(36)
ID 124A	10	M	II.2	ID 217B	23	D	II.1	(36)
ID 124A	10	M	II.2	ID 219A	23	M	III.1	(36)
ID 124A	10	M	II.2	ID 221A	23	D	III.1	(36)
ID 124A	10	M	II.2	ID 222A	23	M	II.2	(36)
ID 124A	10	M	II.2	ID 224A	23	M	II.2	(36)
ID 124A	10	M	II.2	ID 225A	23	M	III.1	(36)
ID 124A	10	M	II.2	LA 117A	23	M	II.1	(36)
ID 124A	10	M	II.2	LA 118A	23	M	II.2	(36)
ID 124A	10	M	II.2	LA 123A	23	D	III.1	(36)
ID 124A	10	M	II.2	LA 124A	23	M	II.2	(36)
ID 124A	10	M	II.2	LA 125A	23	D	III.1	(36)
ID 124A	10	M	II.2	LL 116A	23	M	III.1	(36)
ID 124A	10	M	II.2	LL 124A	23	M	II.2	(36)
ID 124A	10	M	II.2	MD 111A	23	M	I.2	(36)
ID 124A	10	M	II.2	MD 117A	23	D	II.1	(36)
ID 124A	10	M	II.2	OR 125A	23	M	III.1	(36)
ID 124A	10	M	II.2	OR 125B	23	D	III.1	(36)
ID 124A	10	M	II.2	RF 117A	23	D	II.1	(36)
ID 124A	10	M	II.2	RF 118A	23	D	II.1	(36)
ID 124A	10	M	II.2	RF 119A	23	D	III.1	(36)
ID 124A	10	M	II.2	RF 127A	23	D	III.1	(36)
ID 124A	10	M	II.2	RH 123A	23	D	III.1	(36)
ID 124A	10	M	II.2	RH 125A	23	D	III.1	(36)
ID 124A	10	M	II.2	SR 116A	23	D	III.1	(36)
ID 124A	10	M	II.2	SR 122A	23	D	II.1	(36)
LA 124A	10	D	II.2	AE 116A	23	D	III.1	(36)
LA 124A	10	D	II.2	AE 116A	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 111B	23	M	I.2	(36)
LA 124A	10	D	II.2	ID 111C	23	M	I.2	(36)
LA 124A	10	D	II.2	ID 115B	23	M	II.1	(36)
LA 124A	10	D	II.2	ID 115C	23	M	II.1	(36)
LA 124A	10	D	II.2	ID 116B	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 116C	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 117A	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 117B	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 117C	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 118A	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 118B	23	M	II.1	(36)
LA 124A	10	D	II.2	ID 118C	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 119A	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 119B	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 119C	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 121B	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 121C	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 122B	23	M	II.1	(36)
LA 124A	10	D	II.2	ID 122C	23	M	II.1	(36)
LA 124A	10	D	II.2	ID 123B	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 123C	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 125A	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 126B	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 126C	23	M	III.1	(36)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LA 124A	10	D	II.2	ID 127A	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 127B	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 217A	23	D	II.2	(36)
LA 124A	10	D	II.2	ID 217B	23	D	II.1	(36)
LA 124A	10	D	II.2	ID 219A	23	M	III.1	(36)
LA 124A	10	D	II.2	ID 221A	23	D	III.1	(36)
LA 124A	10	D	II.2	ID 222A	23	M	II.2	(36)
LA 124A	10	D	II.2	ID 224A	23	M	II.2	(36)
LA 124A	10	D	II.2	ID 225A	23	M	III.1	(36)
LA 124A	10	D	II.2	LA 117A	23	M	II.1	(36)
LA 124A	10	D	II.2	LA 118A	23	M	II.2	(36)
LA 124A	10	D	II.2	LA 123A	23	D	III.1	(36)
LA 124A	10	D	II.2	LA 124A	23	M	II.2	(36)
LA 124A	10	D	II.2	LA 125A	23	D	III.1	(36)
LA 124A	10	D	II.2	LL 116A	23	M	III.1	(36)
LA 124A	10	D	II.2	LL 124A	23	M	II.2	(36)
LA 124A	10	D	II.2	MD 111A	23	M	I.2	(36)
LA 124A	10	D	II.2	MD 117A	23	D	II.1	(36)
LA 124A	10	D	II.2	OR 125A	23	M	III.1	(36)
LA 124A	10	D	II.2	OR 125B	23	D	III.1	(36)
LA 124A	10	D	II.2	RF 117A	23	D	II.1	(36)
LA 124A	10	D	II.2	RF 118A	23	D	II.1	(36)
LA 124A	10	D	II.2	RF 119A	23	D	III.1	(36)
LA 124A	10	D	II.2	RF 127A	23	D	III.1	(36)
LA 124A	10	D	II.2	RH 123A	23	D	III.1	(36)
LA 124A	10	D	II.2	RH 125A	23	D	III.1	(36)
LA 124A	10	D	II.2	SR 116A	23	D	III.1	(36)
LA 124A	10	D	II.2	SR 122A	23	D	II.1	(36)
LL 111A	10	M	I.1	AE 116A	23	D	III.1	(36)
LL 111A	10	M	I.1	AE 116A	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 111B	23	M	I.2	(36)
LL 111A	10	M	I.1	ID 111C	23	M	I.2	(36)
LL 111A	10	M	I.1	ID 115B	23	M	II.1	(36)
LL 111A	10	M	I.1	ID 115C	23	M	II.1	(36)
LL 111A	10	M	I.1	ID 116B	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 116C	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 117A	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 117B	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 117C	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 118A	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 118B	23	M	II.1	(36)
LL 111A	10	M	I.1	ID 118C	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 119A	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 119B	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 119C	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 121B	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 121C	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 122B	23	M	II.1	(36)
LL 111A	10	M	I.1	ID 122C	23	M	II.1	(36)
LL 111A	10	M	I.1	ID 123B	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 123C	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 125A	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 126B	23	M	III.1	(36)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	10	M	I.1	ID 126C	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 127A	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 127B	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 217A	23	D	II.2	(36)
LL 111A	10	M	I.1	ID 217B	23	D	II.1	(36)
LL 111A	10	M	I.1	ID 219A	23	M	III.1	(36)
LL 111A	10	M	I.1	ID 221A	23	D	III.1	(36)
LL 111A	10	M	I.1	ID 222A	23	M	II.2	(36)
LL 111A	10	M	I.1	ID 224A	23	M	II.2	(36)
LL 111A	10	M	I.1	ID 225A	23	M	III.1	(36)
LL 111A	10	M	I.1	LA 117A	23	M	II.1	(36)
LL 111A	10	M	I.1	LA 118A	23	M	II.2	(36)
LL 111A	10	M	I.1	LA 123A	23	D	III.1	(36)
LL 111A	10	M	I.1	LA 124A	23	M	II.2	(36)
LL 111A	10	M	I.1	LA 125A	23	D	III.1	(36)
LL 111A	10	M	I.1	LL 116A	23	M	III.1	(36)
LL 111A	10	M	I.1	LL 124A	23	M	II.2	(36)
LL 111A	10	M	I.1	MD 111A	23	M	I.2	(36)
LL 111A	10	M	I.1	MD 117A	23	D	II.1	(36)
LL 111A	10	M	I.1	OR 125A	23	M	III.1	(36)
LL 111A	10	M	I.1	OR 125B	23	D	III.1	(36)
LL 111A	10	M	I.1	RF 117A	23	D	II.1	(36)
LL 111A	10	M	I.1	RF 118A	23	D	II.1	(36)
LL 111A	10	M	I.1	RF 119A	23	D	III.1	(36)
LL 111A	10	M	I.1	RF 127A	23	D	III.1	(36)
LL 111A	10	M	I.1	RH 123A	23	D	III.1	(36)
LL 111A	10	M	I.1	RH 125A	23	D	III.1	(36)
LL 111A	10	M	I.1	SR 116A	23	D	III.1	(36)
LL 111A	10	M	I.1	SR 122A	23	D	II.1	(36)
LL 124A	10	M	II.2	AE 116A	23	D	III.1	(36)
LL 124A	10	M	II.2	AE 116A	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 111B	23	M	I.2	(36)
LL 124A	10	M	II.2	ID 111C	23	M	I.2	(36)
LL 124A	10	M	II.2	ID 115B	23	M	II.1	(36)
LL 124A	10	M	II.2	ID 115C	23	M	II.1	(36)
LL 124A	10	M	II.2	ID 116B	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 117A	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 116C	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 117B	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 117C	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 118A	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 118B	23	M	II.1	(36)
LL 124A	10	M	II.2	ID 118C	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 119A	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 119B	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 119C	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 121B	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 121C	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 122B	23	M	II.1	(36)
LL 124A	10	M	II.2	ID 122C	23	M	II.1	(36)
LL 124A	10	M	II.2	ID 123B	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 123C	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 125A	23	M	III.1	(36)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 124A	10	M	II.2	ID 126B	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 126C	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 127A	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 127B	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 217A	23	D	II.2	(36)
LL 124A	10	M	II.2	ID 217B	23	D	II.1	(36)
LL 124A	10	M	II.2	ID 219A	23	M	III.1	(36)
LL 124A	10	M	II.2	ID 221A	23	D	III.1	(36)
LL 124A	10	M	II.2	ID 222A	23	M	II.2	(36)
LL 124A	10	M	II.2	ID 224A	23	M	II.2	(36)
LL 124A	10	M	II.2	ID 225A	23	M	III.1	(36)
LL 124A	10	M	II.2	LA 117A	23	M	II.1	(36)
LL 124A	10	M	II.2	LA 118A	23	M	II.2	(36)
LL 124A	10	M	II.2	LA 123A	23	D	III.1	(36)
LL 124A	10	M	II.2	LA 124A	23	M	II.2	(36)
LL 124A	10	M	II.2	LA 125A	23	D	III.1	(36)
LL 124A	10	M	II.2	LL 116A	23	M	III.1	(36)
LL 124A	10	M	II.2	LL 124A	23	M	II.2	(36)
LL 124A	10	M	II.2	MD 111A	23	M	I.2	(36)
LL 124A	10	M	II.2	MD 117A	23	D	II.1	(36)
LL 124A	10	M	II.2	OR 125A	23	M	III.1	(36)
LL 124A	10	M	II.2	OR 125B	23	D	III.1	(36)
LL 124A	10	M	II.2	RF 117A	23	D	II.1	(36)
LL 124A	10	M	II.2	RF 118A	23	D	II.1	(36)
LL 124A	10	M	II.2	RF 119A	23	D	III.1	(36)
LL 124A	10	M	II.2	RF 127A	23	D	III.1	(36)
LL 124A	10	M	II.2	RH 123A	23	D	III.1	(36)
LL 124A	10	M	II.2	RH 125A	23	D	III.1	(36)
LL 124A	10	M	II.2	SR 116A	23	D	III.1	(36)
LL 124A	10	M	II.2	SR 122A	23	D	II.1	(36)
RF 124A	10	M	II.2	AE 116A	23	D	III.1	(36)
RF 124A	10	M	II.2	AE 116A	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 111B	23	M	I.2	(36)
RF 124A	10	M	II.2	ID 111C	23	M	I.2	(36)
RF 124A	10	M	II.2	ID 115B	23	M	II.1	(36)
RF 124A	10	M	II.2	ID 115C	23	M	II.1	(36)
RF 124A	10	M	II.2	ID 116B	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 116C	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 117A	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 117B	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 117C	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 118A	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 118B	23	M	II.1	(36)
RF 124A	10	M	II.2	ID 118C	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 119A	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 119B	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 119C	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 121B	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 121C	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 122B	23	M	II.1	(36)
RF 124A	10	M	II.2	ID 122C	23	M	II.1	(36)
RF 124A	10	M	II.2	ID 123B	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 123C	23	M	III.1	(36)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 124A	10	M	II.2	ID 125A	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 126B	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 126C	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 127A	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 127B	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 217A	23	D	II.2	(36)
RF 124A	10	M	II.2	ID 217B	23	D	II.1	(36)
RF 124A	10	M	II.2	ID 219A	23	M	III.1	(36)
RF 124A	10	M	II.2	ID 221A	23	D	III.1	(36)
RF 124A	10	M	II.2	ID 222A	23	M	II.2	(36)
RF 124A	10	M	II.2	ID 224A	23	M	II.2	(36)
RF 124A	10	M	II.2	ID 225A	23	M	III.1	(36)
RF 124A	10	M	II.2	LA 117A	23	M	II.1	(36)
RF 124A	10	M	II.2	LA 118A	23	M	II.2	(36)
RF 124A	10	M	II.2	LA 123A	23	D	III.1	(36)
RF 124A	10	M	II.2	LA 124A	23	M	II.2	(36)
RF 124A	10	M	II.2	LA 125A	23	D	III.1	(36)
RF 124A	10	M	II.2	LL 116A	23	M	III.1	(36)
RF 124A	10	M	II.2	LL 124A	23	M	II.2	(36)
RF 124A	10	M	II.2	MD 111A	23	M	I.2	(36)
RF 124A	10	M	II.2	MD 117A	23	D	II.1	(36)
RF 124A	10	M	II.2	OR 125A	23	M	III.1	(36)
RF 124A	10	M	II.2	OR 125B	23	D	III.1	(36)
RF 124A	10	M	II.2	RF 117A	23	D	II.1	(36)
RF 124A	10	M	II.2	RF 118A	23	D	II.1	(36)
RF 124A	10	M	II.2	RF 119A	23	D	III.1	(36)
RF 124A	10	M	II.2	RF 127A	23	D	III.1	(36)
RF 124A	10	M	II.2	RH 123A	23	D	III.1	(36)
RF 124A	10	M	II.2	RH 125A	23	D	III.1	(36)
RF 124A	10	M	II.2	SR 116A	23	D	III.1	(36)
RF 124A	10	M	II.2	SR 122A	23	D	II.1	(36)
ID 124A	10	M	II.2	AE 116A	24	M	III.1	(37)
ID 124A	10	M	II.2	ID 117A	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 117B	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 117C	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 118A	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 118C	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 121B	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 123A	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 123B	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 123C	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 125A	24	M	III.1	(37)
ID 124A	10	M	II.2	ID 127A	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 127B	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 217B	24	D	II.1	(37)
ID 124A	10	M	II.2	ID 221A	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 223A	24	D	III.1	(37)
ID 124A	10	M	II.2	ID 225A	24	M	III.1	(37)
ID 124A	10	M	II.2	LA 123A	24	M	III.1	(37)
ID 124A	10	M	II.2	LA 124A	24	M	II.2	(37)
ID 124A	10	M	II.2	LA 125A	24	D	III.1	(37)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 124A	10	M	II.2	MD 111A	24	M	I.2	(37)
ID 124A	10	M	II.2	RF 117A	24	D	II.1	(37)
ID 124A	10	M	II.2	RF 118A	24	D	II.1	(37)
ID 124A	10	M	II.2	RF 123A	24	D	III.1	(37)
ID 124A	10	M	II.2	RF 127A	24	D	III.1	(37)
ID 124A	10	M	II.2	RH 123A	24	D	III.1	(37)
ID 124A	10	M	II.2	RH 125A	24	M	III.1	(37)
ID 124A	10	M	II.2	SR 116A	24	D	III.1	(37)
ID 124A	10	M	II.2	SR 122A	24	D	II.1	(37)
LA 124A	10	D	II.2	AE 116A	24	M	III.1	(37)
LA 124A	10	D	II.2	ID 117A	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 117B	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 117C	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 118A	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 118C	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 121B	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 123A	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 123B	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 123C	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 125A	24	M	III.1	(37)
LA 124A	10	D	II.2	ID 127A	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 127B	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 217B	24	D	II.1	(37)
LA 124A	10	D	II.2	ID 221A	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 223A	24	D	III.1	(37)
LA 124A	10	D	II.2	ID 225A	24	M	III.1	(37)
LA 124A	10	D	II.2	LA 123A	24	M	III.1	(37)
LA 124A	10	D	II.2	LA 124A	24	M	II.2	(37)
LA 124A	10	D	II.2	LA 125A	24	D	III.1	(37)
LA 124A	10	D	II.2	MD 111A	24	M	I.2	(37)
LA 124A	10	D	II.2	RF 117A	24	D	II.1	(37)
LA 124A	10	D	II.2	RF 118A	24	D	II.1	(37)
LA 124A	10	D	II.2	RF 123A	24	D	III.1	(37)
LA 124A	10	D	II.2	RF 127A	24	D	III.1	(37)
LA 124A	10	D	II.2	RH 123A	24	D	III.1	(37)
LA 124A	10	D	II.2	RH 125A	24	M	III.1	(37)
LA 124A	10	D	II.2	SR 116A	24	D	III.1	(37)
LA 124A	10	D	II.2	SR 122A	24	D	II.1	(37)
LL 111A	10	M	I.1	AE 116A	24	M	III.1	(37)
LL 111A	10	M	I.1	ID 117A	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 117B	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 117C	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 118A	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 118C	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 121B	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 123A	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 123B	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 123C	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 125A	24	M	III.1	(37)
LL 111A	10	M	I.1	ID 127A	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 127B	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 217B	24	D	II.1	(37)
LL 111A	10	M	I.1	ID 221A	24	D	III.1	(37)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 111A	10	M	I.1	ID 223A	24	D	III.1	(37)
LL 111A	10	M	I.1	ID 225A	24	M	III.1	(37)
LL 111A	10	M	I.1	LA 123A	24	M	III.1	(37)
LL 111A	10	M	I.1	LA 124A	24	M	II.2	(37)
LL 111A	10	M	I.1	LA 125A	24	D	III.1	(37)
LL 111A	10	M	I.1	MD 111A	24	M	I.2	(37)
LL 111A	10	M	I.1	RF 117A	24	D	II.1	(37)
LL 111A	10	M	I.1	RF 118A	24	D	II.1	(37)
LL 111A	10	M	I.1	RF 123A	24	D	III.1	(37)
LL 111A	10	M	I.1	RF 127A	24	D	III.1	(37)
LL 111A	10	M	I.1	RH 123A	24	D	III.1	(37)
LL 111A	10	M	I.1	RH 125A	24	M	III.1	(37)
LL 111A	10	M	I.1	SR 116A	24	D	III.1	(37)
LL 111A	10	M	I.1	SR 122A	24	D	II.1	(37)
LL 124A	10	M	II.2	AE 116A	24	M	III.1	(37)
LL 124A	10	M	II.2	ID 117A	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 117B	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 117C	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 118A	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 118C	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 121B	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 123A	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 123B	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 123C	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 125A	24	M	III.1	(37)
LL 124A	10	M	II.2	ID 127A	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 127B	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 217B	24	D	II.1	(37)
LL 124A	10	M	II.2	ID 221A	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 223A	24	D	III.1	(37)
LL 124A	10	M	II.2	ID 225A	24	M	III.1	(37)
LL 124A	10	M	II.2	LA 123A	24	M	III.1	(37)
LL 124A	10	M	II.2	LA 124A	24	M	II.2	(37)
LL 124A	10	M	II.2	LA 125A	24	D	III.1	(37)
LL 124A	10	M	II.2	MD 111A	24	M	I.2	(37)
LL 124A	10	M	II.2	RF 117A	24	D	II.1	(37)
LL 124A	10	M	II.2	RF 118A	24	D	II.1	(37)
LL 124A	10	M	II.2	RF 123A	24	D	III.1	(37)
LL 124A	10	M	II.2	RF 127A	24	D	III.1	(37)
LL 124A	10	M	II.2	RH 123A	24	D	III.1	(37)
LL 124A	10	M	II.2	RH 125A	24	M	III.1	(37)
LL 124A	10	M	II.2	SR 116A	24	D	III.1	(37)
LL 124A	10	M	II.2	SR 122A	24	D	II.1	(37)
RF 124A	10	M	II.2	AE 116A	24	M	III.1	(37)
RF 124A	10	M	II.2	ID 117A	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 117B	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 117C	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 118A	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 118C	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 121B	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 123A	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 123B	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 123C	24	D	III.1	(37)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 124A	10	M	II.2	ID 125A	24	M	III.1	(37)
RF 124A	10	M	II.2	ID 127A	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 127B	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 217B	24	D	II.1	(37)
RF 124A	10	M	II.2	ID 221A	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 223A	24	D	III.1	(37)
RF 124A	10	M	II.2	ID 225A	24	M	III.1	(37)
RF 124A	10	M	II.2	LA 123A	24	M	III.1	(37)
RF 124A	10	M	II.2	LA 124A	24	M	II.2	(37)
RF 124A	10	M	II.2	LA 125A	24	D	III.1	(37)
RF 124A	10	M	II.2	MD 111A	24	M	I.2	(37)
RF 124A	10	M	II.2	RF 117A	24	D	II.1	(37)
RF 124A	10	M	II.2	RF 118A	24	D	II.1	(37)
RF 124A	10	M	II.2	RF 123A	24	D	III.1	(37)
RF 124A	10	M	II.2	RF 127A	24	D	III.1	(37)
RF 124A	10	M	II.2	RH 123A	24	D	III.1	(37)
RF 124A	10	M	II.2	RH 125A	24	M	III.1	(37)
RF 124A	10	M	II.2	SR 116A	24	D	III.1	(37)
RF 124A	10	M	II.2	SR 122A	24	D	II.1	(37)
ID 124A	10	M	II.2	LA 126A	32	M	III.1	(38)
ID 124A	10	M	II.2	RH 112A	32	D	IV.1	(38)
ID 124A	10	M	II.2	SR 116A	32	M	III.1	(38)
LA 124A	10	D	II.2	LA 126A	32	M	III.1	(38)
LA 124A	10	D	II.2	RH 112A	32	D	IV.1	(38)
LA 124A	10	D	II.2	SR 116A	32	M	III.1	(38)
LL 111A	10	M	I.1	LA 126A	32	M	III.1	(38)
LL 111A	10	M	I.1	RH 112A	32	D	IV.1	(38)
LL 111A	10	M	I.1	SR 116A	32	M	III.1	(38)
LL 124A	10	M	II.2	LA 126A	32	M	III.1	(38)
LL 124A	10	M	II.2	RH 112A	32	D	IV.1	(38)
LL 124A	10	M	II.2	SR 116A	32	M	III.1	(38)
RF 124A	10	M	II.2	LA 126A	32	M	III.1	(38)
RF 124A	10	M	II.2	RH 112A	32	D	IV.1	(38)
RF 124A	10	M	II.2	SR 116A	32	M	III.1	(38)
ID 124A	10	M	II.2	AE 111A	107	M	I.1	(39)
ID 124A	10	M	II.2	ID 124A	107	M	II.2	(39)
ID 124A	10	M	II.2	RF 124A	107	M	II.2	(39)
LA 124A	10	D	II.2	AE 111A	107	M	I.1	(39)
LA 124A	10	D	II.2	ID 124A	107	M	II.2	(39)
LA 124A	10	D	II.2	RF 124A	107	M	II.2	(39)
LL 111A	10	M	I.1	AE 111A	107	M	I.1	(39)
LL 111A	10	M	I.1	ID 124A	107	M	II.2	(39)
LL 111A	10	M	I.1	RF 124A	107	M	II.2	(39)
LL 124A	10	M	II.2	AE 111A	107	M	I.1	(39)
LL 124A	10	M	II.2	ID 124A	107	M	II.2	(39)
LL 124A	10	M	II.2	RF 124A	107	M	II.2	(39)
RF 124A	10	M	II.2	AE 111A	107	M	I.1	(39)
RF 124A	10	M	II.2	ID 124A	107	M	II.2	(39)
RF 124A	10	M	II.2	RF 124A	107	M	II.2	(39)
LA 124A	15	D	II.2	AE 111A	107	M	I.1	(40)
LA 124A	15	D	II.2	ID 124A	107	M	II.2	(40)
LA 124A	15	D	II.2	RF 124A	107	M	II.2	(40)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT ODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LL 124A	15	D	II.2	AE 111A	107	M	I.1	(40)
LL 124A	15	D	II.2	ID 124A	107	M	II.2	(40)
LL 124A	15	D	II.2	RF 124A	107	M	II.2	(40)
ID 112A	16	M	IV.1	LA 114A	104	D	I.1	(41)
ID 112A	16	M	IV.1	LA 126A	104	M	III.1	(41)
RF 112A	16	M	IV.1	LA 114A	104	D	I.1	(41)
RF 112A	16	M	IV.1	LA 126A	104	M	III.1	(41)
RH 112A	16	D	IV.1	LA 114A	104	D	I.1	(41)
RH 112A	16	D	IV.1	LA 126A	104	M	III.1	(41)
ID 112A	17	D	IV.1	MD 111A	22	M	I.2	(42)
ID 112A	17	D	IV.1	MD 111B	22	M	I.2	(42)
ID 212A	17	D	IV.1	MD 111A	22	M	I.2	(42)
ID 212A	17	D	IV.1	MD 111B	22	M	I.2	(42)
RF 112A	17	D	IV.1	MD 111A	22	M	I.2	(42)
RF 112A	17	D	IV.1	MD 111B	22	M	I.2	(42)
RH 112A	17	D	IV.1	MD 111A	22	M	I.2	(42)
RH 112A	17	D	IV.1	MD 111B	22	M	I.2	(42)
ID 112A	17	D	IV.1	AE 116A	23	D	III.1	(43)
ID 112A	17	D	IV.1	AE 116A	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 111B	23	M	I.2	(43)
ID 112A	17	D	IV.1	ID 111C	23	M	I.2	(43)
ID 112A	17	D	IV.1	ID 115B	23	M	II.1	(43)
ID 112A	17	D	IV.1	ID 115C	23	M	II.1	(43)
ID 112A	17	D	IV.1	ID 116B	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 116C	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 117A	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 117B	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 117C	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 118A	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 118B	23	M	II.1	(43)
ID 112A	17	D	IV.1	ID 118C	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 119A	23	D	III.1	(43)
ID 112A	17	D	IV.1	ID 119B	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 119C	23	D	III.1	(43)
ID 112A	17	D	IV.1	ID 121B	23	D	III.1	(43)
ID 112A	17	D	IV.1	ID 121C	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 122B	23	M	II.1	(43)
ID 112A	17	D	IV.1	ID 122C	23	M	II.1	(43)
ID 112A	17	D	IV.1	ID 123B	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 123C	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 125A	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 126B	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 126C	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 127A	23	D	III.1	(43)
ID 112A	17	D	IV.1	ID 127B	23	D	III.1	(43)
ID 112A	17	D	IV.1	ID 217A	23	D	II.2	(43)
ID 112A	17	D	IV.1	ID 217B	23	D	II.1	(43)
ID 112A	17	D	IV.1	ID 219A	23	M	III.1	(43)
ID 112A	17	D	IV.1	ID 221A	23	D	III.1	(43)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 112A	17	D	IV.1	ID 222A	23	M	II.2	(43)
ID 112A	17	D	IV.1	ID 224A	23	M	II.2	(43)
ID 112A	17	D	IV.1	ID 225A	23	M	III.1	(43)
ID 112A	17	D	IV.1	LA 117A	23	M	II.1	(43)
ID 112A	17	D	IV.1	LA 118A	23	M	II.2	(43)
ID 112A	17	D	IV.1	LA 123A	23	D	III.1	(43)
ID 112A	17	D	IV.1	LA 124A	23	M	II.2	(43)
ID 112A	17	D	IV.1	LA 125A	23	D	III.1	(43)
ID 112A	17	D	IV.1	LL 116A	23	M	III.1	(43)
ID 112A	17	D	IV.1	LL 124A	23	M	II.2	(43)
ID 112A	17	D	IV.1	MD 111A	23	M	I.2	(43)
ID 112A	17	D	IV.1	MD 117A	23	D	II.1	(43)
ID 112A	17	D	IV.1	OR 125A	23	M	III.1	(43)
ID 112A	17	D	IV.1	OR 125B	23	D	III.1	(43)
ID 112A	17	D	IV.1	RF 117A	23	D	II.1	(43)
ID 112A	17	D	IV.1	RF 118A	23	D	II.1	(43)
ID 112A	17	D	IV.1	RF 119A	23	D	III.1	(43)
ID 112A	17	D	IV.1	RF 127A	23	D	III.1	(43)
ID 112A	17	D	IV.1	RH 123A	23	D	III.1	(43)
ID 112A	17	D	IV.1	RH 125A	23	D	III.1	(43)
ID 112A	17	D	IV.1	SR 116A	23	D	III.1	(43)
ID 112A	17	D	IV.1	SR 122A	23	D	II.1	(43)
ID 212A	17	D	IV.1	AE 116A	23	D	III.1	(43)
ID 212A	17	D	IV.1	AE 116A	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 111B	23	M	I.2	(43)
ID 212A	17	D	IV.1	ID 111C	23	M	I.2	(43)
ID 212A	17	D	IV.1	ID 115B	23	M	II.1	(43)
ID 212A	17	D	IV.1	ID 115C	23	M	II.1	(43)
ID 212A	17	D	IV.1	ID 116B	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 116C	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 117A	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 117B	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 117C	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 118A	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 118B	23	M	II.1	(43)
ID 212A	17	D	IV.1	ID 118C	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 119A	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 119B	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 119C	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 121B	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 121C	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 122B	23	M	II.1	(43)
ID 212A	17	D	IV.1	ID 122C	23	M	II.1	(43)
ID 212A	17	D	IV.1	ID 123B	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 123C	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 125A	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 126B	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 126C	23	M	III.1	(43)
ID 212A	17	D	IV.1	ID 127A	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 127B	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 217A	23	D	II.2	(43)
ID 212A	17	D	IV.1	ID 217B	23	D	II.1	(43)
ID 212A	17	D	IV.1	ID 219A	23	M	III.1	(43)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 212A	17	D	IV.1	ID 221A	23	D	III.1	(43)
ID 212A	17	D	IV.1	ID 222A	23	M	II.2	(43)
ID 212A	17	D	IV.1	ID 224A	23	M	II.2	(43)
ID 212A	17	D	IV.1	ID 225A	23	M	III.1	(43)
ID 212A	17	D	IV.1	LA 117A	23	M	II.1	(43)
ID 212A	17	D	IV.1	LA 118A	23	M	II.2	(43)
ID 212A	17	D	IV.1	LA 123A	23	D	III.1	(43)
ID 212A	17	D	IV.1	LA 124A	23	M	II.2	(43)
ID 212A	17	D	IV.1	LA 125A	23	D	III.1	(43)
ID 212A	17	D	IV.1	LL 116A	23	M	III.1	(43)
ID 212A	17	D	IV.1	LL 124A	23	M	II.2	(43)
ID 212A	17	D	IV.1	MD 111A	23	M	I.2	(43)
ID 212A	17	D	IV.1	MD 117A	23	D	II.1	(43)
ID 212A	17	D	IV.1	OR 125A	23	M	III.1	(43)
ID 212A	17	D	IV.1	OR 125B	23	D	III.1	(43)
ID 212A	17	D	IV.1	RF 117A	23	D	II.1	(43)
ID 212A	17	D	IV.1	RF 118A	23	D	II.1	(43)
ID 212A	17	D	IV.1	RF 119A	23	D	III.1	(43)
ID 212A	17	D	IV.1	RF 127A	23	D	III.1	(43)
ID 212A	17	D	IV.1	RH 123A	23	D	III.1	(43)
ID 212A	17	D	IV.1	RH 125A	23	D	III.1	(43)
ID 212A	17	D	IV.1	SR 116A	23	D	III.1	(43)
ID 212A	17	D	IV.1	SR 122A	23	D	II.1	(43)
RF 112A	17	D	IV.1	AE 116A	23	D	III.1	(43)
RF 112A	17	D	IV.1	AE 116A	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 111B	23	M	I.2	(43)
RF 112A	17	D	IV.1	ID 111C	23	M	I.2	(43)
RF 112A	17	D	IV.1	ID 115B	23	M	II.1	(43)
RF 112A	17	D	IV.1	ID 115C	23	M	II.1	(43)
RF 112A	17	D	IV.1	ID 116B	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 116C	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 117A	23	D	II.1	(43)
RF 112A	17	D	IV.1	ID 117B	23	D	II.1	(43)
RF 112A	17	D	IV.1	ID 117C	23	D	II.1	(43)
RF 112A	17	D	IV.1	ID 118A	23	D	II.1	(43)
RF 112A	17	D	IV.1	ID 118B	23	M	II.1	(43)
RF 112A	17	D	IV.1	ID 118C	23	D	II.1	(43)
RF 112A	17	D	IV.1	ID 119A	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 119B	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 119C	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 121B	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 121C	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 122B	23	M	II.1	(43)
RF 112A	17	D	IV.1	ID 122C	23	M	II.1	(43)
RF 112A	17	D	IV.1	ID 123B	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 123C	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 125A	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 126B	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 126C	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 127A	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 127B	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 217A	23	D	II.2	(43)
RF 112A	17	D	IV.1	ID 217B	23	D	II.1	(43)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 112A	17	D	IV.1	ID 219A	23	M	III.1	(43)
RF 112A	17	D	IV.1	ID 221A	23	D	III.1	(43)
RF 112A	17	D	IV.1	ID 222A	23	M	II.2	(43)
RF 112A	17	D	IV.1	ID 224A	23	M	II.2	(43)
RF 112A	17	D	IV.1	ID 225A	23	M	III.1	(43)
RF 112A	17	D	IV.1	LA 117A	23	M	II.1	(43)
RF 112A	17	D	IV.1	LA 118A	23	M	II.2	(43)
RF 112A	17	D	IV.1	LA 123A	23	D	III.1	(43)
RF 112A	17	D	IV.1	LA 124A	23	M	II.2	(43)
RF 112A	17	D	IV.1	LA 125A	23	D	III.1	(43)
RF 112A	17	D	IV.1	LL 116A	23	M	III.1	(43)
RF 112A	17	D	IV.1	LL 124A	23	M	II.2	(43)
RF 112A	17	D	IV.1	MD 111A	23	M	I.2	(43)
RF 112A	17	D	IV.1	MD 117A	23	D	II.1	(43)
RF 112A	17	D	IV.1	OR 125A	23	M	III.1	(43)
RF 112A	17	D	IV.1	OR 125B	23	D	III.1	(43)
RF 112A	17	D	IV.1	RF 117A	23	D	II.1	(43)
RF 112A	17	D	IV.1	RF 118A	23	D	II.1	(43)
RF 112A	17	D	IV.1	RF 119A	23	D	III.1	(43)
RF 112A	17	D	IV.1	RF 127A	23	D	III.1	(43)
RF 112A	17	D	IV.1	RH 123A	23	D	III.1	(43)
RF 112A	17	D	IV.1	RH 125A	23	D	III.1	(43)
RF 112A	17	D	IV.1	SR 116A	23	D	III.1	(43)
RF 112A	17	D	IV.1	SR 122A	23	D	II.1	(43)
RH 112A	17	D	IV.1	AE 116A	23	D	III.1	(43)
RH 112A	17	D	IV.1	AE 116A	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 111B	23	M	I.2	(43)
RH 112A	17	D	IV.1	ID 111C	23	M	I.2	(43)
RH 112A	17	D	IV.1	ID 115B	23	M	II.1	(43)
RH 112A	17	D	IV.1	ID 115C	23	M	II.1	(43)
RH 112A	17	D	IV.1	ID 116B	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 116C	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 117A	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 117B	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 117C	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 118A	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 118B	23	M	II.1	(43)
RH 112A	17	D	IV.1	ID 118C	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 119A	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 119B	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 119C	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 121B	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 121C	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 122B	23	M	II.1	(43)
RH 112A	17	D	IV.1	ID 122C	23	M	II.1	(43)
RH 112A	17	D	IV.1	ID 123B	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 123C	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 125A	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 126B	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 126C	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 127A	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 127B	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 217A	23	D	II.2	(43)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RH 112A	17	D	IV.1	ID 217B	23	D	II.1	(43)
RH 112A	17	D	IV.1	ID 219A	23	M	III.1	(43)
RH 112A	17	D	IV.1	ID 221A	23	D	III.1	(43)
RH 112A	17	D	IV.1	ID 222A	23	M	II.2	(43)
RH 112A	17	D	IV.1	ID 224A	23	M	II.2	(43)
RH 112A	17	D	IV.1	ID 225A	23	M	III.1	(43)
RH 112A	17	D	IV.1	LA 117A	23	M	II.1	(43)
RH 112A	17	D	IV.1	LA 118A	23	M	II.2	(43)
RH 112A	17	D	IV.1	LA 123A	23	D	III.1	(43)
RH 112A	17	D	IV.1	LA 124A	23	M	II.2	(43)
RH 112A	17	D	IV.1	LA 125A	23	D	III.1	(43)
RH 112A	17	D	IV.1	LL 116A	23	M	III.1	(43)
RH 112A	17	D	IV.1	LL 124A	23	M	II.2	(43)
RH 112A	17	D	IV.1	MD 111A	23	M	I.2	(43)
RH 112A	17	D	IV.1	MD 117A	23	D	II.1	(43)
RH 112A	17	D	IV.1	OR 125A	23	M	III.1	(43)
RH 112A	17	D	IV.1	OR 125B	23	D	III.1	(43)
RH 112A	17	D	IV.1	RF 117A	23	D	II.1	(43)
RH 112A	17	D	IV.1	RF 118A	23	D	II.1	(43)
RH 112A	17	D	IV.1	RF 119A	23	D	III.1	(43)
RH 112A	17	D	IV.1	RF 127A	23	D	III.1	(43)
RH 112A	17	D	IV.1	RH 123A	23	D	III.1	(43)
RH 112A	17	D	IV.1	RH 125A	23	D	III.1	(43)
RH 112A	17	D	IV.1	SR 116A	23	D	III.1	(43)
RH 112A	17	D	IV.1	SR 122A	23	D	II.1	(43)
ID 112A	17	D	IV.1	LA 114A	104	D	I.1	(44)
ID 112A	17	D	IV.1	LA 126A	104	M	III.1	(44)
ID 212A	17	D	IV.1	LA 114A	104	D	I.1	(44)
ID 212A	17	D	IV.1	LA 126A	104	M	III.1	(44)
RF 112A	17	D	IV.1	LA 114A	104	D	I.1	(44)
RF 112A	17	D	IV.1	LA 126A	104	M	III.1	(44)
RH 112A	17	D	IV.1	LA 114A	104	D	I.1	(44)
RH 112A	17	D	IV.1	LA 126A	104	M	III.1	(44)
ID 112A	17	D	IV.1	AE 111A	107	M	I.1	(45)
ID 112A	17	D	IV.1	ID 124A	107	M	II.2	(45)
ID 112A	17	D	IV.1	RF 124A	107	M	II.2	(45)
ID 212A	17	D	IV.1	AE 111A	107	M	I.1	(45)
ID 212A	17	D	IV.1	ID 124A	107	M	II.2	(45)
ID 212A	17	D	IV.1	RF 124A	107	M	II.2	(45)
RF 112A	17	D	IV.1	AE 111A	107	M	I.1	(45)
RF 112A	17	D	IV.1	ID 124A	107	M	II.2	(45)
RF 112A	17	D	IV.1	RF 124A	107	M	II.2	(45)
RH 112A	17	D	IV.1	AE 111A	107	M	I.1	(45)
RH 112A	17	D	IV.1	ID 124A	107	M	II.2	(45)
RH 112A	17	D	IV.1	RF 124A	107	M	II.2	(45)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
MD 111A	22	M	I.2	LA 114A	104	D	I.1	(46)
MD 111A	22	M	I.2	LA 126A	104	M	III.1	(46)
MD 111B	22	M	I.2	LA 114A	104	D	I.1	(46)
MD 111B	22	M	I.2	LA 126A	104	M	III.1	(46)
MD 111A	22	M	I.2	ID 111A	106	D	I.2	(47)
MD 111A	22	M	I.2	ID 111B	106	D	I.2	(47)
MD 111A	22	M	I.2	ID 111C	106	D	I.2	(47)
MD 111A	22	M	I.2	ID 113A	106	M	IV.1	(47)
MD 111A	22	M	I.2	ID 127A	106	D	III.1	(47)
MD 111A	22	M	I.2	ID 127B	106	D	III.1	(47)
MD 111A	22	M	I.2	ID 211A	106	D	I.2	(47)
MD 111A	22	M	I.2	ID 213A	106	D	IV.1	(47)
MD 111A	22	M	I.2	RF 111A	106	D	I.2	(47)
MD 111A	22	M	I.2	RF 113A	106	M	IV.1	(47)
MD 111A	22	M	I.2	RF 127A	106	D	III.1	(47)
MD 111B	22	M	I.2	ID 111A	106	D	I.2	(47)
MD 111B	22	M	I.2	ID 111B	106	D	I.2	(47)
MD 111B	22	M	I.2	ID 111C	106	D	I.2	(47)
MD 111B	22	M	I.2	ID 113A	106	M	IV.1	(47)
MD 111B	22	M	I.2	ID 127A	106	D	III.1	(47)
MD 111B	22	M	I.2	ID 127B	106	D	III.1	(47)
MD 111B	22	M	I.2	ID 211A	106	D	I.2	(47)
MD 111B	22	M	I.2	ID 213A	106	D	IV.1	(47)
MD 111B	22	M	I.2	RF 111A	106	D	I.2	(47)
MD 111B	22	M	I.2	RF 113A	106	M	IV.1	(47)
MD 111B	22	M	I.2	RF 127A	106	D	III.1	(47)
MD 111A	22	M	I.2	BRINE	106	D	V	(47A)
MD 11B	22	M	I.2	BRINE	106	D	V	(47A)
MD 111A	22	M	I.2	AE 111A	107	M	I.1	(48)
MD 111A	22	M	I.2	ID 124A	107	M	II.2	(48)
MD 111A	22	M	I.2	RF 124A	107	M	II.2	(48)
MD 111B	22	M	I.2	AE 111A	107	M	I.1	(48)
MD 111B	22	M	I.2	ID 124A	107	M	II.2	(48)
MD 111B	22	M	I.2	RF 124A	107	M	II.2	(48)
AE 116A	23	D	III.1	LA 114A	104	D	I.1	(49)
AE 116A	23	D	III.1	LA 126A	104	M	III.1	(49)
AE 116A	23	M	III.1	LA 114A	104	D	I.1	(49)
AE 116A	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 111B	23	M	I.2	LA 114A	104	D	I.1	(49)
ID 111B	23	M	I.2	LA 126A	104	M	III.1	(49)
ID 111C	23	M	I.2	LA 114A	104	D	I.1	(49)
ID 111C	23	M	I.2	LA 126A	104	M	III.1	(49)
ID 115B	23	M	II.1	LA 114A	104	D	I.1	(49)
ID 115B	23	M	II.1	LA 126A	104	M	III.1	(49)
ID 115C	23	M	II.1	LA 114A	104	D	I.1	(49)
ID 115C	23	M	II.1	LA 126A	104	M	III.1	(49)
ID 116B	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 116B	23	M	III.1	LA 126A	104	M	III.1	(49)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 116C	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 116C	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 117A	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 117A	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 17B	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 117B	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 117C	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 117C	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 118A	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 118A	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 118B	23	M	II.1	LA 114A	104	D	I.1	(49)
ID 118B	23	M	II.1	LA 126A	104	M	III.1	(49)
ID 118C	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 118C	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 119A	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 119A	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 119B	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 119B	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 119C	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 119C	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 121B	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 121B	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 121C	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 121C	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 122B	23	M	II.1	LA 114A	104	D	I.1	(49)
ID 122B	23	M	II.1	LA 126A	104	M	III.1	(49)
ID 122C	23	M	II.1	LA 114A	104	D	I.1	(49)
ID 122C	23	M	II.1	LA 126A	104	M	III.1	(49)
ID 123B	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 123B	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 123C	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 123C	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 125A	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 125A	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 126B	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 126B	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 126C	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 126C	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 127A	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 127A	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 127B	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 127B	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 217A	23	D	II.2	LA 114A	104	D	I.1	(49)
ID 217A	23	D	II.2	LA 126A	104	M	III.1	(49)
ID 217B	23	D	II.1	LA 114A	104	D	I.1	(49)
ID 217B	23	D	II.1	LA 126A	104	M	III.1	(49)
ID 219A	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 219A	23	M	III.1	LA 126A	104	M	III.1	(49)
ID 221A	23	D	III.1	LA 114A	104	D	I.1	(49)
ID 221A	23	D	III.1	LA 126A	104	M	III.1	(49)
ID 222A	23	M	II.2	LA 114A	104	D	I.1	(49)
ID 222A	23	M	II.2	LA 126A	104	M	III.1	(49)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 224A	23	M	II.2	LA 114A	104	D	I.1	(49)
ID 224A	23	M	II.2	LA 126A	104	M	III.1	(49)
ID 225A	23	M	III.1	LA 114A	104	D	I.1	(49)
ID 225A	23	M	III.1	LA 126A	104	M	III.1	(49)
LA 117A	23	M	II.1	LA 114A	104	D	I.1	(49)
LA 117A	23	M	II.1	LA 126A	104	M	III.1	(49)
LA 118A	23	M	II.2	LA 114A	104	D	I.1	(49)
LA 118A	23	M	II.2	LA 126A	104	M	III.1	(49)
LA 123A	23	D	III.1	LA 114A	104	D	I.1	(49)
LA 123A	23	D	III.1	LA 126A	104	M	III.1	(49)
LA 124A	23	M	II.2	LA 114A	104	D	I.1	(49)
LA 124A	23	M	II.2	LA 126A	104	M	III.1	(49)
LA 125A	23	D	III.1	LA 114A	104	D	I.1	(49)
LA 125A	23	D	III.1	LA 126A	104	M	III.1	(49)
LL 116A	23	M	III.1	LA 114A	104	D	I.1	(49)
LL 116A	23	M	III.1	LA 126A	104	M	III.1	(49)
LL 124A	23	M	II.2	LA 114A	104	D	I.1	(49)
LL 124A	23	M	II.2	LA 126A	104	M	III.1	(49)
MD 111A	23	M	I.2	LA 114A	104	D	I.1	(49)
MD 111A	23	M	I.2	LA 126A	104	M	III.1	(49)
MD 117A	23	D	II.1	LA 114A	104	D	I.1	(49)
MD 117A	23	D	II.1	LA 126A	104	M	III.1	(49)
OR 125A	23	M	III.1	LA 114A	104	D	I.1	(49)
OR 125A	23	M	III.1	LA 126A	104	M	III.1	(49)
OR 125B	23	D	III.1	LA 114A	104	D	I.1	(49)
OR 125B	23	D	III.1	LA 126A	104	M	III.1	(49)
RF 117A	23	D	II.1	LA 114A	104	D	I.1	(49)
RF 117A	23	D	II.1	LA 126A	104	M	III.1	(49)
RF 118A	23	D	II.1	LA 114A	104	D	I.1	(49)
RF 118A	23	D	II.1	LA 126A	104	M	III.1	(49)
RF 119A	23	D	III.1	LA 114A	104	D	I.1	(49)
RF 119A	23	D	III.1	LA 126A	104	M	III.1	(49)
RF 127A	23	D	III.1	LA 114A	104	D	I.1	(49)
RF 127A	23	D	III.1	LA 126A	104	M	III.1	(49)
RH 123A	23	D	III.1	LA 114A	104	D	I.1	(49)
RH 123A	23	D	III.1	LA 126A	104	M	III.1	(49)
RH 125A	23	D	III.1	LA 114A	104	D	I.1	(49)
RH 125A	23	D	III.1	LA 126A	104	M	III.1	(49)
SR 116A	23	D	III.1	LA 114A	104	D	I.1	(49)
SR 116A	23	D	III.1	LA 126A	104	M	III.1	(49)
SR 122A	23	D	II.1	LA 114A	104	D	I.1	(49)
SR 122A	23	D	II.1	LA 126A	104	M	III.1	(49)
AE 116A	23	D	III.1	AE 111A	107	M	I.1	(50)
AE 116A	23	D	III.1	ID 124A	107	M	II.2	(50)
AE 116A	23	D	III.1	RF 124A	107	M	II.2	(50)
AE 116A	23	M	III.1	AE 111A	107	M	I.1	(50)
AE 116A	23	M	III.1	ID 124A	107	M	II.2	(50)
AE 116A	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 111B	23	M	I.2	AE 111A	107	M	I.1	(50)
ID 111B	23	M	I.2	ID 124A	107	M	II.2	(50)
ID 111B	23	M	I.2	RF 124A	107	M	II.2	(50)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 111C	23	M	I.2	AE 111A	107	M	I.1	(50)
ID 111C	23	M	I.2	ID 124A	107	M	II.2	(50)
ID 111C	23	M	I.2	RF 124A	107	M	II.2	(50)
ID 115B	23	M	II.1	AE 111A	107	M	I.1	(50)
ID 115B	23	M	II.1	ID 124A	107	M	II.2	(50)
ID 115B	23	M	II.1	RF 124A	107	M	II.2	(50)
ID 115C	23	M	II.1	AE 111A	107	M	I.1	(50)
ID 115C	23	M	II.1	ID 124A	107	M	II.2	(50)
ID 115C	23	M	II.1	RF 124A	107	M	II.2	(50)
ID 116B	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 116B	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 116B	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 116C	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 116C	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 116C	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 117A	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 117A	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 117A	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 117B	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 117B	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 117B	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 117C	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 117C	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 117C	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 118A	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 118A	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 118A	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 118B	23	M	II.1	AE 111A	107	M	I.1	(50)
ID 118B	23	M	II.1	ID 124A	107	M	II.2	(50)
ID 118B	23	M	II.1	RF 124A	107	M	II.2	(50)
ID 118C	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 118C	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 118C	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 119A	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 119A	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 119A	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 119B	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 119B	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 119B	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 119C	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 119C	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 119C	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 121B	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 121B	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 121B	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 121C	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 121C	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 121C	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 122B	23	M	II.1	AE 111A	107	M	I.1	(50)
ID 122B	23	M	II.1	ID 124A	107	M	II.2	(50)
ID 122B	23	M	II.1	RF 124A	107	M	II.2	(50)
ID 122C	23	M	II.1	AE 111A	107	M	I.1	(50)
ID 122C	23	M	II.1	ID 124A	107	M	II.2	(50)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 122C	23	M	II.1	RF 124A	107	M	II.2	(50)
ID 123B	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 123B	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 123B	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 123C	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 123C	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 123C	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 125A	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 125A	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 125A	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 126B	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 126B	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 126B	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 126C	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 126C	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 126C	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 127A	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 127A	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 127A	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 127B	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 127B	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 127B	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 217A	23	D	II.2	AE 111A	107	M	I.1	(50)
ID 217A	23	D	II.2	ID 124A	107	M	II.2	(50)
ID 217A	23	D	II.2	RF 124A	107	M	II.2	(50)
ID 217B	23	D	II.1	AE 111A	107	M	I.1	(50)
ID 217B	23	D	II.1	ID 124A	107	M	II.2	(50)
ID 217B	23	D	II.1	RF 124A	107	M	II.2	(50)
ID 219A	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 219A	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 219A	23	M	III.1	RF 124A	107	M	II.2	(50)
ID 221A	23	D	III.1	AE 111A	107	M	I.1	(50)
ID 221A	23	D	III.1	ID 124A	107	M	II.2	(50)
ID 221A	23	D	III.1	RF 124A	107	M	II.2	(50)
ID 222A	23	M	II.2	AE 111A	107	M	I.1	(50)
ID 222A	23	M	II.2	ID 124A	107	M	II.2	(50)
ID 222A	23	M	II.2	RF 124A	107	M	II.2	(50)
ID 224A	23	M	II.2	AE 111A	107	M	I.1	(50)
ID 224A	23	M	II.2	ID 124A	107	M	II.2	(50)
ID 224A	23	M	II.2	RF 124A	107	M	II.2	(50)
ID 225A	23	M	III.1	AE 111A	107	M	I.1	(50)
ID 225A	23	M	III.1	ID 124A	107	M	II.2	(50)
ID 225A	23	M	III.1	RF 124A	107	M	II.2	(50)
LA 117A	23	M	II.1	AE 111A	107	M	I.1	(50)
LA 117A	23	M	II.1	ID 124A	107	M	II.2	(50)
LA 117A	23	M	II.1	RF 124A	107	M	II.2	(50)
LA 118A	23	M	II.2	AE 111A	107	M	I.1	(50)
LA 118A	23	M	II.2	ID 124A	107	M	II.2	(50)
LA 118A	23	M	II.2	RF 124A	107	M	II.2	(50)
LA 123A	23	D	III.1	AE 111A	107	M	I.1	(50)
LA 123A	23	D	III.1	ID 124A	107	M	II.2	(50)
LA 123A	23	D	III.1	RF 124A	107	M	II.2	(50)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LA 124A	23	M	II.2	AE 111A	107	M	I.1	(50)
LA 124A	23	M	II.2	ID 124A	107	M	II.2	(50)
LA 124A	23	M	II.2	RF 124A	107	M	II.2	(50)
LA 125A	23	D	III.1	AE 111A	107	M	I.1	(50)
LA 125A	23	D	III.1	ID 124A	107	M	II.2	(50)
LA 125A	23	D	III.1	RF 124A	107	M	II.2	(50)
LL 116A	23	M	III.1	AE 111A	107	M	I.1	(50)
LL 116A	23	M	III.1	ID 124A	107	M	II.2	(50)
LL 116A	23	M	III.1	RF 124A	107	M	II.2	(50)
LL 124A	23	M	II.2	AE 111A	107	M	I.1	(50)
LL 124A	23	M	II.2	ID 124A	107	M	II.2	(50)
LL 124A	23	M	II.2	RF 124A	107	M	II.2	(50)
MD 111A	23	M	I.2	AE 111A	107	M	I.1	(50)
MD 111A	23	M	I.2	ID 124A	107	M	II.2	(50)
MD 111A	23	M	I.2	RF 124A	107	M	II.2	(50)
MD 117A	23	D	II.1	AE 111A	107	M	I.1	(50)
MD 117A	23	D	II.1	ID 124A	107	M	II.2	(50)
MD 117A	23	D	II.1	RF 124A	107	M	II.2	(50)
OR 125A	23	M	III.1	AE 111A	107	M	I.1	(50)
OR 125A	23	M	III.1	ID 124A	107	M	II.2	(50)
OR 125A	23	M	III.1	RF 124A	107	M	II.2	(50)
OR 125B	23	D	III.1	AE 111A	107	M	I.1	(50)
OR 125B	23	D	III.1	ID 124A	107	M	II.2	(50)
OR 125B	23	D	III.1	RF 124A	107	M	II.2	(50)
RF 117A	23	D	II.1	AE 111A	107	M	I.1	(50)
RF 117A	23	D	II.1	ID 124A	107	M	II.2	(50)
RF 117A	23	D	II.1	RF 124A	107	M	II.2	(50)
RF 118A	23	D	II.1	AE 111A	107	M	I.1	(50)
RF 118A	23	D	II.1	ID 124A	107	M	II.2	(50)
RF 118A	23	D	II.1	RF 124A	107	M	II.2	(50)
RF 119A	23	D	III.1	AE 111A	107	M	I.1	(50)
RF 119A	23	D	III.1	ID 124A	107	M	II.2	(50)
RF 119A	23	D	III.1	RF 124A	107	M	II.2	(50)
RF 127A	23	D	III.1	AE 111A	107	M	I.1	(50)
RF 127A	23	D	III.1	ID 124A	107	M	II.2	(50)
RF 127A	23	D	III.1	RF 124A	107	M	II.2	(50)
RH 123A	23	D	III.1	AE 111A	107	M	I.1	(50)
RH 123A	23	D	III.1	ID 124A	107	M	II.2	(50)
RH 123A	23	D	III.1	RF 124A	107	M	II.2	(50)
RH 125A	23	D	III.1	AE 111A	107	M	I.1	(50)
RH 125A	23	D	III.1	ID 124A	107	M	II.2	(50)
RH 125A	23	D	III.1	RF 124A	107	M	II.2	(50)
SR 116A	23	D	III.1	AE 111A	107	M	I.1	(50)
SR 116A	23	D	III.1	ID 124A	107	M	II.2	(50)
SR 116A	23	D	III.1	RF 124A	107	M	II.2	(50)
SR 122A	23	D	II.1	AE 111A	107	M	I.1	(50)
SR 122A	23	D	II.1	ID 124A	107	M	II.2	(50)
SR 122A	23	D	II.1	RF 124A	107	M	II.2	(50)
AE 116A	24	M	III.1	ID 111A	106	D	I.2	(51)
AE 116A	24	M	III.1	ID 111B	106	D	I.2	(51)
AE 116A	24	M	III.1	ID 111C	106	D	I.2	(51)
AE 116A	24	M	III.1	ID 113A	106	M	IV.1	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
AE 116A	24	M	III.1	ID 127A	106	D	III.1	(51)
AE 116A	24	M	III.1	ID 127B	106	D	III.1	(51)
AE 116A	24	M	III.1	ID 211A	106	D	I.2	(51)
AE 116A	24	M	III.1	ID 213A	106	D	IV.1	(51)
AE 116A	24	M	III.1	RF 111A	106	D	I.2	(51)
AE 116A	24	M	III.1	RF 113A	106	M	IV.1	(51)
AE 116A	24	M	III.1	RF 127A	106	D	III.1	(51)
ID 117A	24	D	II.1	ID 111A	106	D	I.2	(51)
ID 117A	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 117A	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 117A	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 117A	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 117A	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 117A	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 117A	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 117A	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 117A	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 117A	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 117B	24	D	II.1	ID 111A	106	D	I.2	(51)
ID 117B	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 117B	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 117B	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 117B	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 117B	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 117B	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 117B	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 117B	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 117B	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 117B	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 117C	24	D	II.1	ID 111A	106	D	I.2	(51)
ID 117C	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 117C	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 117C	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 117C	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 117C	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 117C	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 117C	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 117C	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 117C	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 117C	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 118A	24	D	II.1	ID 111A	106	D	I.2	(51)
ID 118A	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 118A	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 118A	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 118A	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 118A	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 118A	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 118A	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 118A	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 118A	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 118A	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 118C	24	D	II.1	ID 111A	106	D	I.2	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 118C	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 118C	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 118C	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 118C	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 118C	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 118C	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 118C	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 118C	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 118C	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 118C	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 121B	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 121B	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 121B	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 121B	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 121B	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 121B	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 121B	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 121B	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 121B	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 121B	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 121B	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 123A	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 123A	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 123A	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 123A	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 123A	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 123A	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 123A	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 123A	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 123A	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 123A	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 123A	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 123B	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 123B	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 123B	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 123B	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 123B	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 123B	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 123B	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 123B	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 123B	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 123B	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 123B	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 123C	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 123C	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 123C	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 123C	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 123C	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 123C	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 123C	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 123C	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 123C	24	D	III.1	RF 111A	106	D	I.2	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 123C	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 123C	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 125A	24	M	III.1	ID 111A	106	D	I.2	(51)
ID 125A	24	M	III.1	ID 111B	106	D	I.2	(51)
ID 125A	24	M	III.1	ID 111C	106	D	I.2	(51)
ID 125A	24	M	III.1	ID 113A	106	M	IV.1	(51)
ID 125A	24	M	III.1	ID 127A	106	D	III.1	(51)
ID 125A	24	M	III.1	ID 127B	106	D	III.1	(51)
ID 125A	24	M	III.1	ID 211A	106	D	I.2	(51)
ID 125A	24	M	III.1	ID 213A	106	D	IV.1	(51)
ID 125A	24	M	III.1	RF 111A	106	D	I.2	(51)
ID 125A	24	M	III.1	RF 113A	106	M	IV.1	(51)
ID 125A	24	M	III.1	RF 127A	106	D	III.1	(51)
ID 127A	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 127A	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 127A	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 127A	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 127A	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 127A	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 127A	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 127A	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 127A	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 127A	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 127A	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 127B	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 127B	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 127B	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 127B	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 127B	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 127B	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 127B	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 127B	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 127B	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 127B	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 127B	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 217B	24	D	II.1	ID 111A	106	D	I.2	(51)
ID 217B	24	D	II.1	ID 111B	106	D	I.2	(51)
ID 217B	24	D	II.1	ID 111C	106	D	I.2	(51)
ID 217B	24	D	II.1	ID 113A	106	M	IV.1	(51)
ID 217B	24	D	II.1	ID 127A	106	D	III.1	(51)
ID 217B	24	D	II.1	ID 127B	106	D	III.1	(51)
ID 217B	24	D	II.1	ID 211A	106	D	I.2	(51)
ID 217B	24	D	II.1	ID 213A	106	D	IV.1	(51)
ID 217B	24	D	II.1	RF 111A	106	D	I.2	(51)
ID 217B	24	D	II.1	RF 113A	106	M	IV.1	(51)
ID 217B	24	D	II.1	RF 127A	106	D	III.1	(51)
ID 221A	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 221A	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 221A	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 221A	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 221A	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 221A	24	D	III.1	ID 127B	106	D	III.1	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 221A	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 221A	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 221A	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 221A	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 221A	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 223A	24	D	III.1	ID 111A	106	D	I.2	(51)
ID 223A	24	D	III.1	ID 111B	106	D	I.2	(51)
ID 223A	24	D	III.1	ID 111C	106	D	I.2	(51)
ID 223A	24	D	III.1	ID 113A	106	M	IV.1	(51)
ID 223A	24	D	III.1	ID 127A	106	D	III.1	(51)
ID 223A	24	D	III.1	ID 127B	106	D	III.1	(51)
ID 223A	24	D	III.1	ID 211A	106	D	I.2	(51)
ID 223A	24	D	III.1	ID 213A	106	D	IV.1	(51)
ID 223A	24	D	III.1	RF 111A	106	D	I.2	(51)
ID 223A	24	D	III.1	RF 113A	106	M	IV.1	(51)
ID 223A	24	D	III.1	RF 127A	106	D	III.1	(51)
ID 225A	24	M	III.1	ID 111A	106	D	I.2	(51)
ID 225A	24	M	III.1	ID 111B	106	D	I.2	(51)
ID 225A	24	M	III.1	ID 111C	106	D	I.2	(51)
ID 225A	24	M	III.1	ID 113A	106	M	IV.1	(51)
ID 225A	24	M	III.1	ID 127A	106	D	III.1	(51)
ID 225A	24	M	III.1	ID 127B	106	D	III.1	(51)
ID 225A	24	M	III.1	ID 211A	106	D	I.2	(51)
ID 225A	24	M	III.1	ID 213A	106	D	IV.1	(51)
ID 225A	24	M	III.1	RF 111A	106	D	I.2	(51)
ID 225A	24	M	III.1	RF 113A	106	M	IV.1	(51)
ID 225A	24	M	III.1	RF 127A	106	D	III.1	(51)
LA 123A	24	M	III.1	ID 111A	106	D	I.2	(51)
LA 123A	24	M	III.1	ID 111B	106	D	I.2	(51)
LA 123A	24	M	III.1	ID 111C	106	D	I.2	(51)
LA 123A	24	M	III.1	ID 113A	106	M	IV.1	(51)
LA 123A	24	M	III.1	ID 127A	106	D	III.1	(51)
LA 123A	24	M	III.1	ID 127B	106	D	III.1	(51)
LA 123A	24	M	III.1	ID 211A	106	D	I.2	(51)
LA 123A	24	M	III.1	ID 213A	106	D	IV.1	(51)
LA 123A	24	M	III.1	RF 111A	106	D	I.2	(51)
LA 123A	24	M	III.1	RF 113A	106	M	IV.1	(51)
LA 123A	24	M	III.1	RF 127A	106	D	III.1	(51)
LA 124A	24	M	II.2	ID 111A	106	D	I.2	(51)
LA 124A	24	M	II.2	ID 111B	106	D	I.2	(51)
LA 124A	24	M	II.2	ID 111C	106	D	I.2	(51)
LA 124A	24	M	II.2	ID 113A	106	M	IV.1	(51)
LA 124A	24	M	II.2	ID 127A	106	D	III.1	(51)
LA 124A	24	M	II.2	ID 127B	106	D	III.1	(51)
LA 124A	24	M	II.2	ID 211A	106	D	I.2	(51)
LA 124A	24	M	II.2	ID 213A	106	D	IV.1	(51)
LA 124A	24	M	II.2	RF 111A	106	D	I.2	(51)
LA 124A	24	M	II.2	RF 113A	106	M	IV.1	(51)
LA 124A	24	M	II.2	RF 127A	106	D	III.1	(51)
LA 125A	24	D	III.1	ID 111A	106	D	I.2	(51)
LA 125A	24	D	III.1	ID 111B	106	D	I.2	(51)
LA 125A	24	D	III.1	ID 111C	106	D	I.2	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
LA 125A	24	D	III.1	ID 113A	106	M	IV.1	(51)
LA 125A	24	D	III.1	ID 127A	106	D	III.1	(51)
LA 125A	24	D	III.1	ID 127B	106	D	III.1	(51)
LA 125A	24	D	III.1	ID 211A	106	D	I.2	(51)
LA 125A	24	D	III.1	ID 213A	106	D	IV.1	(51)
LA 125A	24	D	III.1	RF 111A	106	D	I.2	(51)
LA 125A	24	D	III.1	RF 113A	106	M	IV.1	(51)
LA 125A	24	D	III.1	RF 127A	106	D	III.1	(51)
MD 111A	24	M	I.2	ID 111A	106	D	I.2	(51)
MD 111A	24	M	I.2	ID 111B	106	D	I.2	(51)
MD 111A	24	M	I.2	ID 111C	106	D	I.2	(51)
MD 111A	24	M	I.2	ID 113A	106	M	IV.1	(51)
MD 111A	24	M	I.2	ID 127A	106	D	III.1	(51)
MD 111A	24	M	I.2	ID 127B	106	D	III.1	(51)
MD 111A	24	M	I.2	ID 211A	106	D	I.2	(51)
MD 111A	24	M	I.2	ID 213A	106	D	IV.1	(51)
MD 111A	24	M	I.2	RF 111A	106	D	I.2	(51)
MD 111A	24	M	I.2	RF 113A	106	M	IV.1	(51)
MD 111A	24	M	I.2	RF 127A	106	D	III.1	(51)
RF 117A	24	D	II.1	ID 111A	106	D	I.2	(51)
RF 117A	24	D	II.1	ID 111B	106	D	I.2	(51)
RF 117A	24	D	II.1	ID 111C	106	D	I.2	(51)
RF 117A	24	D	II.1	ID 113A	106	M	IV.1	(51)
RF 117A	24	D	II.1	ID 127A	106	D	III.1	(51)
RF 117A	24	D	II.1	ID 127B	106	D	III.1	(51)
RF 117A	24	D	II.1	ID 211A	106	D	I.2	(51)
RF 117A	24	D	II.1	ID 213A	106	D	IV.1	(51)
RF 117A	24	D	II.1	RF 111A	106	D	I.2	(51)
RF 117A	24	D	II.1	RF 113A	106	M	IV.1	(51)
RF 117A	24	D	II.1	RF 127A	106	D	III.1	(51)
RF 118A	24	D	II.1	ID 111A	106	D	I.2	(51)
RF 118A	24	D	II.1	ID 111B	106	D	I.2	(51)
RF 118A	24	D	II.1	ID 111C	106	D	I.2	(51)
RF 118A	24	D	II.1	ID 113A	106	M	IV.1	(51)
RF 118A	24	D	II.1	ID 127A	106	D	III.1	(51)
RF 118A	24	D	II.1	ID 127B	106	D	III.1	(51)
RF 118A	24	D	II.1	ID 211A	106	D	I.2	(51)
RF 118A	24	D	II.1	ID 213A	106	D	IV.1	(51)
RF 118A	24	D	II.1	RF 111A	106	D	I.2	(51)
RF 118A	24	D	II.1	RF 113A	106	M	IV.1	(51)
RF 118A	24	D	II.1	RF 127A	106	D	III.1	(51)
RF 123A	24	D	III.1	ID 111A	106	D	I.2	(51)
RF 123A	24	D	III.1	ID 111B	106	D	I.2	(51)
RF 123A	24	D	III.1	ID 111C	106	D	I.2	(51)
RF 123A	24	D	III.1	ID 113A	106	M	IV.1	(51)
RF 123A	24	D	III.1	ID 127A	106	D	III.1	(51)
RF 123A	24	D	III.1	ID 127B	106	D	III.1	(51)
RF 123A	24	D	III.1	ID 211A	106	D	I.2	(51)
RF 123A	24	D	III.1	ID 213A	106	D	IV.1	(51)
RF 123A	24	D	III.1	RF 111A	106	D	I.2	(51)
RF 123A	24	D	III.1	RF 113A	106	M	IV.1	(51)
RF 123A	24	D	III.1	RF 127A	106	D	III.1	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 127A	24	D	III.1	ID 111A	106	D	I.2	(51)
RF 127A	24	D	III.1	ID 111B	106	D	I.2	(51)
RF 127A	24	D	III.1	ID 111C	106	D	I.2	(51)
RF 127A	24	D	III.1	ID 113A	106	M	IV.1	(51)
RF 127A	24	D	III.1	ID 127A	106	D	III.1	(51)
RF 127A	24	D	III.1	ID 127B	106	D	III.1	(51)
RF 127A	24	D	III.1	ID 211A	106	D	I.2	(51)
RF 127A	24	D	III.1	ID 213A	106	D	IV.1	(51)
RF 127A	24	D	III.1	RF 111A	106	D	I.2	(51)
RF 127A	24	D	III.1	RF 113A	106	M	IV.1	(51)
RF 127A	24	D	III.1	RF 127A	106	D	III.1	(51)
RH 123A	24	D	III.1	ID 111A	106	D	I.2	(51)
RH 123A	24	D	III.1	ID 111B	106	D	I.2	(51)
RH 123A	24	D	III.1	ID 111C	106	D	I.2	(51)
RH 123A	24	D	III.1	ID 113A	106	M	IV.1	(51)
RH 123A	24	D	III.1	ID 127A	106	D	III.1	(51)
RH 123A	24	D	III.1	ID 127B	106	D	III.1	(51)
RH 123A	24	D	III.1	ID 211A	106	D	I.2	(51)
RH 123A	24	D	III.1	ID 213A	106	D	IV.1	(51)
RH 123A	24	D	III.1	RF 111A	106	D	I.2	(51)
RH 123A	24	D	III.1	RF 113A	106	M	IV.1	(51)
RH 123A	24	D	III.1	RF 127A	106	D	III.1	(51)
RH 125A	24	M	III.1	ID 111A	106	D	I.2	(51)
RH 125A	24	M	III.1	ID 111B	106	D	I.2	(51)
RH 125A	24	M	III.1	ID 111C	106	D	I.2	(51)
RH 125A	24	M	III.1	ID 113A	106	M	IV.1	(51)
RH 125A	24	M	III.1	ID 127A	106	D	III.1	(51)
RH 125A	24	M	III.1	ID 127B	106	D	III.1	(51)
RH 125A	24	M	III.1	ID 211A	106	D	I.2	(51)
RH 125A	24	M	III.1	ID 213A	106	D	IV.1	(51)
RH 125A	24	M	III.1	RF 111A	106	D	I.2	(51)
RH 125A	24	M	III.1	RF 113A	106	M	IV.1	(51)
RH 125A	24	M	III.1	RF 127A	106	D	III.1	(51)
SR 116A	24	D	III.1	ID 111A	106	D	I.2	(51)
SR 116A	24	D	III.1	ID 111B	106	D	I.2	(51)
SR 116A	24	D	III.1	ID 111C	106	D	I.2	(51)
SR 116A	24	D	III.1	ID 113A	106	M	IV.1	(51)
SR 116A	24	D	III.1	ID 127A	106	D	III.1	(51)
SR 116A	24	D	III.1	ID 127B	106	D	III.1	(51)
SR 116A	24	D	III.1	ID 211A	106	D	I.2	(51)
SR 116A	24	D	III.1	ID 213A	106	D	IV.1	(51)
SR 116A	24	D	III.1	RF 111A	106	D	I.2	(51)
SR 116A	24	D	III.1	RF 113A	106	M	IV.1	(51)
SR 116A	24	D	III.1	RF 127A	106	D	III.1	(51)
SR 122A	24	D	II.1	ID 111A	106	D	I.2	(51)
SR 122A	24	D	II.1	ID 111B	106	D	I.2	(51)
SR 122A	24	D	II.1	ID 111C	106	D	I.2	(51)
SR 122A	24	D	II.1	ID 113A	106	M	IV.1	(51)
SR 122A	24	D	II.1	ID 127A	106	D	III.1	(51)
SR 122A	24	D	II.1	ID 127B	106	D	III.1	(51)
SR 122A	24	D	II.1	ID 211A	106	D	I.2	(51)
SR 122A	24	D	II.1	ID 213A	106	D	IV.1	(51)
SR 122A	24	D	II.1	RF 111A	106	D	I.2	(51)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
SR 122A	24	D	II.1	RF 113A	106	M	IV.1	(51)
SR 122A	24	D	II.1	RF 127A	106	D	III.1	(51)
AE 116A	24	M	III.1	BRINE	106	D	V	(51A)
ID 117A	24	D	II.1	BRINE	106	D	V	(51A)
ID 117B	24	D	II.1	BRINE	106	D	V	(51A)
ID 117C	24	D	II.1	BRINE	106	D	V	(51A)
ID 118A	24	D	II.1	BRINE	106	D	V	(51A)
ID 118C	24	D	II.1	BRINE	106	D	V	(51A)
ID 121B	24	D	III.1	BRINE	106	D	V	(51A)
ID 123A	24	D	III.1	BRINE	106	D	V	(51A)
ID 123B	24	D	III.1	BRINE	106	D	V	(51A)
ID 123C	24	D	III.1	BRINE	106	D	V	(51A)
ID 125A	24	M	III.1	BRINE	106	D	V	(51A)
ID 127A	24	D	III.1	BRINE	106	D	V	(51A)
ID 127B	24	D	III.1	BRINE	106	D	V	(51A)
ID 217B	24	D	II.1	BRINE	106	D	V	(51A)
ID 221A	24	D	III.1	BRINE	106	D	V	(51A)
ID 223A	24	D	III.1	BRINE	106	D	V	(51A)
ID 225A	24	M	III.1	BRINE	106	D	V	(51A)
LA 123A	24	M	III.1	BRINE	106	D	V	(51A)
LA 124A	24	M	II.2	BRINE	106	D	V	(51A)
LA 125A	24	D	III.1	BRINE	106	D	V	(51A)
MD 111A	24	M	I.2	BRINE	106	D	V	(51A)
RF 117A	24	D	II.1	BRINE	106	D	V	(51A)
RF 118A	24	D	II.1	BRINE	106	D	V	(51A)
RF 123A	24	D	III.1	BRINE	106	D	V	(51A)
RF 127A	24	D	III.1	BRINE	106	D	V	(51A)
RH 123A	24	D	III.1	BRINE	106	D	V	(51A)
RH 125A	24	M	III.1	BRINE	106	D	V	(51A)
SR 116A	24	D	III.1	BRINE	106	D	V	(51A)
SR 122A	24	D	II.1	BRINE	106	D	V	(51A)
AE 116A	24	M	III.1	AE 111A	107	M	I.1	(52)
AE 116A	24	M	III.1	ID 124A	107	M	II.2	(52)
AE 116A	24	M	III.1	RF 124A	107	M	II.2	(52)
ID 117A	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 117A	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 117A	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 117B	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 117B	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 117B	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 117C	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 117C	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 117C	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 118A	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 118A	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 118A	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 118C	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 118C	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 118C	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 121B	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 121B	24	D	III.1	ID 124A	107	M	II.2	(52)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 121B	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 123A	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 123A	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 123A	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 123B	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 123B	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 123B	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 123C	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 123C	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 123C	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 125A	24	M	III.1	AE 111A	107	M	I.1	(52)
ID 125A	24	M	III.1	ID 124A	107	M	II.2	(52)
ID 125A	24	M	III.1	RF 124A	107	M	II.2	(52)
ID 127A	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 127A	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 127A	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 127B	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 127B	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 127B	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 217B	24	D	II.1	AE 111A	107	M	I.1	(52)
ID 217B	24	D	II.1	ID 124A	107	M	II.2	(52)
ID 217B	24	D	II.1	RF 124A	107	M	II.2	(52)
ID 221A	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 221A	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 221A	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 223A	24	D	III.1	AE 111A	107	M	I.1	(52)
ID 223A	24	D	III.1	ID 124A	107	M	II.2	(52)
ID 223A	24	D	III.1	RF 124A	107	M	II.2	(52)
ID 225A	24	M	III.1	AE 111A	107	M	I.1	(52)
ID 225A	24	M	III.1	ID 124A	107	M	II.2	(52)
ID 225A	24	M	III.1	RF 124A	107	M	II.2	(52)
LA 123A	24	M	III.1	AE 111A	107	M	I.1	(52)
LA 123A	24	M	III.1	ID 124A	107	M	II.2	(52)
LA 123A	24	M	III.1	RF 124A	107	M	II.2	(52)
LA 124A	24	M	II.2	AE 111A	107	M	I.1	(52)
LA 124A	24	M	II.2	ID 124A	107	M	II.2	(52)
LA 124A	24	M	II.2	RF 124A	107	M	II.2	(52)
LA 125A	24	D	III.1	AE 111A	107	M	I.1	(52)
LA 125A	24	D	III.1	ID 124A	107	M	II.2	(52)
LA 125A	24	D	III.1	RF 124A	107	M	II.2	(52)
MD 111A	24	M	I.2	AE 111A	107	M	I.1	(52)
MD 111A	24	M	I.2	ID 124A	107	M	II.2	(52)
MD 111A	24	M	I.2	RF 124A	107	M	II.2	(52)
RF 117A	24	D	II.1	AE 111A	107	M	I.1	(52)
RF 117A	24	D	II.1	ID 124A	107	M	II.2	(52)
RF 117A	24	D	II.1	RF 124A	107	M	II.2	(52)
RF 118A	24	D	II.1	AE 111A	107	M	I.1	(52)
RF 118A	24	D	II.1	ID 124A	107	M	II.2	(52)
RF 118A	24	D	II.1	RF 124A	107	M	II.2	(52)
RF 123A	24	D	III.1	AE 111A	107	M	I.1	(52)
RF 123A	24	D	III.1	ID 124A	107	M	II.2	(52)
RF 123A	24	D	III.1	RF 124A	107	M	II.2	(52)
RF 127A	24	D	III.1	AE 111A	107	M	I.1	(52)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 127A	24	D	III.1	ID 124A	107	M	II.2	(52)
RF 127A	24	D	III.1	RF 124A	107	M	II.2	(52)
RH 123A	24	D	III.1	AE 111A	107	M	I.1	(52)
RH 123A	24	D	III.1	ID 124A	107	M	II.2	(52)
RH 123A	24	D	III.1	RF 124A	107	M	II.2	(52)
RH 125A	24	M	III.1	AE 111A	107	M	I.1	(52)
RH 125A	24	M	III.1	ID 124A	107	M	II.2	(52)
RH 125A	24	M	III.1	RF 124A	107	M	II.2	(52)
SR 116A	24	D	III.1	AE 111A	107	M	I.1	(52)
SR 116A	24	D	III.1	ID 124A	107	M	II.2	(52)
SR 116A	24	D	III.1	RF 124A	107	M	II.2	(52)
SR 122A	24	D	II.1	AE 111A	107	M	I.1	(52)
SR 122A	24	D	II.1	ID 124A	107	M	II.2	(52)
SR 122A	24	D	II.1	RF 124A	107	M	II.2	(52)
LA 126A	29	M	III.1	LA 114A	104	D	I.1	(53)
LA 126A	29	M	III.1	LA 126A	104	M	III.1	(53)
LA 126A	29	M	III.1	AE 111A	107	M	I.1	(54)
LA 126A	29	M	III.1	ID 124A	107	M	II.2	(54)
LA 126A	29	M	III.1	RF 124A	107	M	II.2	(54)
LA 126A	32	M	III.1	LA 114A	104	D	I.1	(55)
LA 126A	32	M	III.1	LA 126A	104	M	III.1	(55)
RH 112A	32	D	IV.1	LA 114A	104	D	I.1	(55)
RH 112A	32	D	IV.1	LA 126A	104	M	III.1	(55)
SR 116A	32	M	III.1	LA 114A	104	D	I.1	(55)
SR 116A	32	M	III.1	LA 126A	104	M	III.1	(55)
LA 126A	32	M	III.1	AE 111A	107	M	I.1	(56)
LA 126A	32	M	III.1	ID 124A	107	M	II.2	(56)
LA 126A	32	M	III.1	RF 124A	107	M	II.2	(56)
RH 112A	32	D	IV.1	AE 111A	107	M	I.1	(56)
RH 112A	32	D	IV.1	ID 124A	107	M	II.2	(56)
RH 112A	32	D	IV.1	RF 124A	107	M	II.2	(56)
SR 116A	32	M	III.1	AE 111A	107	M	I.1	(56)
SR 116A	32	M	III.1	ID 124A	107	M	II.2	(56)
SR 116A	32	M	III.1	RF 124A	107	M	II.2	(56)
AE 116A	101	M	III.1	LA 114A	104	D	I.1	(57)
AE 116A	101	M	III.1	LA 126A	104	M	III.1	(57)
AE 116A	101	D	III.1	LA 114A	104	D	I.1	(57)
AE 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 111A	101	M	I.2	LA 114A	104	D	I.1	(57)
ID 111A	101	M	I.2	LA 126A	104	M	III.1	(57)
ID 111C	101	M	I.2	LA 114A	104	D	I.1	(57)
ID 111C	101	M	I.2	LA 126A	104	M	III.1	(57)
ID 112A	101	D	IV.1	LA 114A	104	D	I.1	(57)
ID 112A	101	D	IV.1	LA 126A	104	M	III.1	(57)
ID 115B	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 115B	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 116A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 116B	101	D	III.1	LA 114A	104	D	I.1	(57)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 116B	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 116C	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 116C	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 117A	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 117A	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 117B	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 117B	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 117C	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 117C	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 118A	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 118A	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 118B	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 118B	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 118C	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 118C	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 119A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 119A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 119B	101	M	III.1	LA 114A	104	D	I.1	(57)
ID 119B	101	M	III.1	LA 126A	104	M	III.1	(57)
ID 119C	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 119C	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 121A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 121A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 121B	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 121B	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 121C	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 121C	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 122A	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 122A	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 122B	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 122B	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 122C	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 122C	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 123A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 123A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 123B	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 123B	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 123C	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 123C	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 125A	101	M	III.1	LA 114A	104	D	I.1	(57)
ID 125A	101	M	III.1	LA 126A	104	M	III.1	(57)
ID 126A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 126A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 126B	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 126B	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 126C	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 126C	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 127A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 127A	101	D	III.1	LA 126A	104	M	III.1	(57)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 127B	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 127B	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 212A	101	D	IV.1	LA 114A	104	D	I.1	(57)
ID 212A	101	D	IV.1	LA 126A	104	M	III.1	(57)
ID 215A	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 215A	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 216A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 216A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 217A	101	M	II.2	LA 114A	104	D	I.1	(57)
ID 217A	101	M	II.2	LA 126A	104	M	III.1	(57)
ID 217B	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 217B	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 218A	101	M	II.1	LA 114A	104	D	I.1	(57)
ID 218A	101	M	II.1	LA 126A	104	M	III.1	(57)
ID 219A	101	M	III.1	LA 114A	104	D	I.1	(57)
ID 219A	101	M	III.1	LA 126A	104	M	III.1	(57)
ID 221A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 221A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 222A	101	M	II.2	LA 114A	104	D	I.1	(57)
ID 222A	101	M	II.2	LA 126A	104	M	III.1	(57)
ID 223A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 223A	101	D	III.1	LA 126A	104	M	III.1	(57)
ID 224A	101	M	II.2	LA 114A	104	D	I.1	(57)
ID 224A	101	M	II.2	LA 126A	104	M	III.1	(57)
ID 225A	101	M	III.1	LA 114A	104	D	I.1	(57)
ID 225A	101	M	III.1	LA 126A	104	M	III.1	(57)
ID 225B	101	M	III.1	LA 114A	104	D	I.1	(57)
ID 225B	101	M	III.1	LA 126A	104	M	III.1	(57)
ID 226A	101	D	III.1	LA 114A	104	D	I.1	(57)
ID 226A	101	D	III.1	LA 126A	104	M	III.1	(57)
LA 116A	101	D	III.1	LA 114A	104	D	I.1	(57)
LA 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
LA 123A	101	D	III.1	LA 114A	104	D	I.1	(57)
LA 123A	101	D	III.1	LA 126A	104	M	III.1	(57)
LA 125A	101	D	III.1	LA 114A	104	D	I.1	(57)
LA 125A	101	D	III.1	LA 126A	104	M	III.1	(57)
LA 126A	101	M	III.1	LA 114A	104	D	I.1	(57)
LA 126A	101	M	III.1	LA 126A	104	M	III.1	(57)
LL 116A	101	M	III.1	LA 114A	104	D	I.1	(57)
LL 116A	101	M	III.1	LA 126A	104	M	III.1	(57)
LL 124A	101	M	II.2	LA 114A	104	D	I.1	(57)
LL 124A	101	M	II.2	LA 126A	104	M	III.1	(57)
MD 116A	101	D	III.1	LA 114A	104	D	I.1	(57)
MD 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
OR 125A	101	D	III.1	LA 114A	104	D	I.1	(57)
OR 125A	101	D	III.1	LA 126A	104	M	III.1	(57)
OR 125B	101	M	III.1	LA 114A	104	D	I.1	(57)
OR 125B	101	M	III.1	LA 126A	104	M	III.1	(57)
RF 111A	101	M	I.2	LA 114A	104	D	I.1	(57)
RF 111A	101	M	I.2	LA 126A	104	M	III.1	(57)
RF 112A	101	D	IV.1	LA 114A	104	D	I.1	(57)
RF 112A	101	D	IV.1	LA 126A	104	M	III.1	(57)
RF 116A	101	D	III.1	LA 114A	104	D	I.1	(57)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
RF 117A	101	M	II.1	LA 114A	104	D	I.1	(57)
RF 117A	101	M	II.1	LA 126A	104	M	III.1	(57)
RF 118A	101	M	II.1	LA 114A	104	D	I.1	(57)
RF 118A	101	M	II.1	LA 126A	104	M	III.1	(57)
RF 119A	101	D	III.1	LA 114A	104	D	I.1	(57)
RF 119A	101	D	III.1	LA 126A	104	M	III.1	(57)
RF 121A	101	D	III.1	LA 114A	104	D	I.1	(57)
RF 121A	101	D	III.1	LA 126A	104	M	III.1	(57)
RF 122A	101	M	II.1	LA 114A	104	D	I.1	(57)
RF 122A	101	M	II.1	LA 126A	104	M	III.1	(57)
RF 123A	101	D	III.1	LA 114A	104	D	I.1	(57)
RF 123A	101	D	III.1	LA 126A	104	M	III.1	(57)
RF 126A	101	D	III.1	LA 114A	104	D	I.1	(57)
RF 126A	101	D	III.1	LA 126A	104	M	III.1	(57)
RF 127A	101	D	III.1	LA 114A	104	D	I.1	(57)
RF 127A	101	D	III.1	LA 126A	104	M	III.1	(57)
RH 112A	101	D	IV.1	LA 114A	104	D	I.1	(57)
RH 112A	101	D	IV.1	LA 126A	104	M	III.1	(57)
RH 114A	101	D	I.3	LA 114A	104	D	I.1	(57)
RH 114A	101	D	I.3	LA 126A	104	M	III.1	(57)
RH 123A	101	D	III.1	LA 114A	104	D	I.1	(57)
RH 123A	101	D	III.1	LA 126A	104	M	III.1	(57)
RH 125A	101	D	III.1	LA 114A	104	D	I.1	(57)
RH 125A	101	D	III.1	LA 126A	104	M	III.1	(57)
SR 116A	101	D	III.1	LA 114A	104	D	I.1	(57)
SR 116A	101	D	III.1	LA 126A	104	M	III.1	(57)
SR 122A	101	D	II.1	LA 114A	104	D	I.1	(57)
SR 122A	101	D	II.1	LA 126A	104	M	III.1	(57)
AE 116A	101	M	III.1	AE 111A	107	M	I.1	(58)
AE 116A	101	M	III.1	ID 124A	107	M	II.2	(58)
AE 116A	101	M	III.1	RF 124A	107	M	II.2	(58)
AE 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
AE 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
AE 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 111A	101	M	I.2	AE 111A	107	M	I.1	(58)
ID 111A	101	M	I.2	ID 124A	107	M	II.2	(58)
ID 111A	101	M	I.2	RF 124A	107	M	II.2	(58)
ID 111C	101	M	I.2	AE 111A	107	M	I.1	(58)
ID 111C	101	M	I.2	ID 124A	107	M	II.2	(58)
ID 111C	101	M	I.2	RF 124A	107	M	II.2	(58)
ID 112A	101	D	IV.1	AE 111A	107	M	I.1	(58)
ID 112A	101	D	IV.1	ID 124A	107	M	II.2	(58)
ID 112A	101	D	IV.1	RF 124A	107	M	II.2	(58)
ID 115B	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 115B	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 115B	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 116B	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 116B	101	D	III.1	ID 124A	107	M	II.2	(58)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 116B	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 116C	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 116C	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 116C	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 117A	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 117A	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 117A	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 117B	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 117B	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 117B	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 117C	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 117C	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 117C	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 118A	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 118A	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 118A	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 118B	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 118B	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 118B	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 118C	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 118C	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 118C	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 119A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 119A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 119A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 119B	101	M	III.1	AE 111A	107	M	I.1	(58)
ID 119B	101	M	III.1	ID 124A	107	M	II.2	(58)
ID 119B	101	M	III.1	RF 124A	107	M	II.2	(58)
ID 119C	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 119C	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 119C	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 121A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 121A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 121A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 121B	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 121B	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 121B	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 121C	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 121C	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 121C	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 122A	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 122A	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 122A	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 122B	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 122B	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 122B	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 122C	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 122C	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 122C	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 123A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 123A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 123A	101	D	III.1	RF 124A	107	M	II.2	(58)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE(S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 123B	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 123B	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 123B	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 123C	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 123C	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 123C	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 125A	101	M	III.1	AE 111A	107	M	I.1	(58)
ID 125A	101	M	III.1	ID 124A	107	M	II.2	(58)
ID 125A	101	M	III.1	RF 124A	107	M	II.2	(58)
ID 126A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 126A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 126A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 126B	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 126B	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 126B	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 126C	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 126C	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 126C	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 127A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 127A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 127A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 127B	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 127B	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 127B	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 212A	101	D	IV.1	AE 111A	107	M	I.1	(58)
ID 212A	101	D	IV.1	ID 124A	107	M	II.2	(58)
ID 212A	101	D	IV.1	RF 124A	107	M	II.2	(58)
ID 215A	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 215A	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 215A	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 216A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 216A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 216A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 217A	101	M	II.2	AE 111A	107	M	I.1	(58)
ID 217A	101	M	II.2	ID 124A	107	M	II.2	(58)
ID 217A	101	M	II.2	RF 124A	107	M	II.2	(58)
ID 217B	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 217B	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 217B	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 218A	101	M	II.1	AE 111A	107	M	I.1	(58)
ID 218A	101	M	II.1	ID 124A	107	M	II.2	(58)
ID 218A	101	M	II.1	RF 124A	107	M	II.2	(58)
ID 219A	101	M	III.1	AE 111A	107	M	I.1	(58)
ID 219A	101	M	III.1	ID 124A	107	M	II.2	(58)
ID 219A	101	M	III.1	RF 124A	107	M	II.2	(58)
ID 221A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 221A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 221A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 222A	101	M	II.2	AE 111A	107	M	I.1	(58)
ID 222A	101	M	II.2	ID 124A	107	M	II.2	(58)
ID 222A	101	M	II.2	RF 124A	107	M	II.2	(58)
ID 223A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 223A	101	D	III.1	ID 124A	107	M	II.2	(58)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
ID 223A	101	D	III.1	RF 124A	107	M	II.2	(58)
ID 224A	101	M	II.2	AE 111A	107	M	I.1	(58)
ID 224A	101	M	II.2	ID 124A	107	M	II.2	(58)
ID 224A	101	M	II.2	RF 124A	107	M	II.2	(58)
ID 225A	101	M	III.1	AE 111A	107	M	I.1	(58)
ID 225A	101	M	III.1	ID 124A	107	M	II.2	(58)
ID 225A	101	M	III.1	RF 124A	107	M	II.2	(58)
ID 225B	101	M	III.1	AE 111A	107	M	I.1	(58)
ID 225B	101	M	III.1	ID 124A	107	M	II.2	(58)
ID 225B	101	M	III.1	RF 124A	107	M	II.2	(58)
ID 226A	101	D	III.1	AE 111A	107	M	I.1	(58)
ID 226A	101	D	III.1	ID 124A	107	M	II.2	(58)
ID 226A	101	D	III.1	RF 124A	107	M	II.2	(58)
LA 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
LA 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
LA 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
LA 123A	101	D	III.1	AE 111A	107	M	I.1	(58)
LA 123A	101	D	III.1	ID 124A	107	M	II.2	(58)
LA 123A	101	D	III.1	RF 124A	107	M	II.2	(58)
LA 125A	101	D	III.1	AE 111A	107	M	I.1	(58)
LA 125A	101	D	III.1	ID 124A	107	M	II.2	(58)
LA 125A	101	D	III.1	RF 124A	107	M	II.2	(58)
LA 126A	101	M	III.1	AE 111A	107	M	I.1	(58)
LA 126A	101	M	III.1	ID 124A	107	M	II.2	(58)
LA 126A	101	M	III.1	RF 124A	107	M	II.2	(58)
LL 116A	101	M	III.1	AE 111A	107	M	I.1	(58)
LL 116A	101	M	III.1	ID 124A	107	M	II.2	(58)
LL 116A	101	M	III.1	RF 124A	107	M	II.2	(58)
LL 124A	101	M	II.2	AE 111A	107	M	I.1	(58)
LL 124A	101	M	II.2	ID 124A	107	M	II.2	(58)
LL 124A	101	M	II.2	RF 124A	107	M	II.2	(58)
MD 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
MD 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
MD 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
OR 125A	101	D	III.1	AE 111A	107	M	I.1	(58)
OR 125A	101	D	III.1	ID 124A	107	M	II.2	(58)
OR 125A	101	D	III.1	RF 124A	107	M	II.2	(58)
OR 125B	101	M	III.1	AE 111A	107	M	I.1	(58)
OR 125B	101	M	III.1	ID 124A	107	M	II.2	(58)
OR 125B	101	M	III.1	RF 124A	107	M	II.2	(58)
RF 111A	101	M	I.2	AE 111A	107	M	I.1	(58)
RF 111A	101	M	I.2	ID 124A	107	M	II.2	(58)
RF 111A	101	M	I.2	RF 124A	107	M	II.2	(58)
RF 112A	101	D	IV.1	AE 111A	107	M	I.1	(58)
RF 112A	101	D	IV.1	ID 124A	107	M	II.2	(58)
RF 112A	101	D	IV.1	RF 124A	107	M	II.2	(58)
RF 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
RF 117A	101	M	II.1	AE 111A	107	M	I.1	(58)
RF 117A	101	M	II.1	ID 124A	107	M	II.2	(58)
RF 117A	101	M	II.1	RF 124A	107	M	II.2	(58)
RF 118A	101	M	II.1	AE 111A	107	M	I.1	(58)

CONTENT CODES SET A				CONTENT CODES SET B				EX
CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	CONTENT CODE (S)	REACT GROUP	D/M	WASTE MAT. TYPE	
RF 118A	101	M	II.1	ID 124A	107	M	II.2	(58)
RF 118A	101	M	II.1	RF 124A	107	M	II.2	(58)
RF 119A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 119A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 119A	101	D	III.1	RF 124A	107	M	II.2	(58)
RF 121A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 121A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 121A	101	D	III.1	RF 124A	107	M	II.2	(58)
RF 122A	101	M	II.1	AE 111A	107	M	I.1	(58)
RF 122A	101	M	II.1	ID 124A	107	M	II.2	(58)
RF 122A	101	M	II.1	RF 124A	107	M	II.2	(58)
RF 123A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 123A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 123A	101	D	III.1	RF 124A	107	M	II.2	(58)
RF 126A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 126A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 126A	101	D	III.1	RF 124A	107	M	II.2	(58)
RF 127A	101	D	III.1	AE 111A	107	M	I.1	(58)
RF 127A	101	D	III.1	ID 124A	107	M	II.2	(58)
RF 127A	101	D	III.1	RF 124A	107	M	II.2	(58)
RH 112A	101	D	IV.1	AE 111A	107	M	I.1	(58)
RH 112A	101	D	IV.1	ID 124A	107	M	II.2	(58)
RH 112A	101	D	IV.1	RF 124A	107	M	II.2	(58)
RH 114A	101	D	I.3	AE 111A	107	M	I.1	(58)
RH 114A	101	D	I.3	ID 124A	107	M	II.2	(58)
RH 114A	101	D	I.3	RF 124A	107	M	II.2	(58)
RH 123A	101	D	III.1	AE 111A	107	M	I.1	(58)
RH 123A	101	D	III.1	ID 124A	107	M	II.2	(58)
RH 123A	101	D	III.1	RF 124A	107	M	II.2	(58)
RH 125A	101	D	III.1	AE 111A	107	M	I.1	(58)
RH 125A	101	D	III.1	ID 124A	107	M	II.2	(58)
RH 125A	101	D	III.1	RF 124A	107	M	II.2	(58)
SR 116A	101	D	III.1	AE 111A	107	M	I.1	(58)
SR 116A	101	D	III.1	ID 124A	107	M	II.2	(58)
SR 116A	101	D	III.1	RF 124A	107	M	II.2	(58)
SR 122A	101	D	II.1	AE 111A	107	M	I.1	(58)
SR 122A	101	D	II.1	ID 124A	107	M	II.2	(58)
SR 122A	101	D	II.1	RF 124A	107	M	II.2	(58)
LA 114A	104	D	I.1	AE 111A	107	M	I.1	(59)
LA 114A	104	D	I.1	ID 124A	107	M	II.2	(59)
LA 114A	104	D	I.1	RF 124A	107	M	II.2	(59)
LA 126A	104	M	III.1	AE 111A	107	M	I.1	(59)
LA 126A	104	M	III.1	ID 124A	107	M	II.2	(59)
LA 126A	104	M	III.1	RF 124A	107	M	II.2	(59)

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