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Appendices C1 through C13

Waste Isolation Pilot Plant
Carlsbad, New Mexico

APPENDIX C1
CHEMICAL COMPATIBILITY ANALYSIS OF WASTE FORMS AND CONTAINER MATERIALS

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The chemical compatibility analysis was carried out with all defense generated, contact-handled (CH) and remote-handled (RH) transuranic (TRU)-mixed waste streams reported in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR) (DOE, 1995). A summary of these waste streams is given in Table C-1 (Chapter C). The reported content of CH and RH streams will be verified through the WIPP Generator/Storage Site Waste Screening and Acceptance Audit Program (Appendix C11).

All information for the chemical lists and compatibility study is maintained in databases on a personal computer. The chemicals reported by the generator sites are classified into reaction groups as defined by the U.S. Environmental Protection Agency (EPA) document, A Method for Determining the Compatibility of Hazardous Wastes (Hatayama et al., 1980). The chemical lists are derived from the TRUPACT-II database, EPA hazardous waste codes listed in the WTWBIR, and waste descriptions.

A database program was developed to evaluate the chemical compatibility of the WTWBIR waste streams. Potential incompatibilities are defined on Figure 6 of the EPA document (Hatayama et al., 1980), which identifies combinations of chemical groups that are incompatible and the consequences (e.g., heat generation) of mixing incompatible chemical groups. All incompatible mixtures have been entered into a reference data base 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 by content code is described in detail below.

As an initial step, the program indexes the entire database according to the WTWBIR waste stream codes. The program then locates the first reaction group within the first waste stream code and picks the highest concentration of any chemical in that group. The selected reaction group is then paired with every other reaction group in the waste stream to check for incompatibility. If a potential incompatibility is found, it is printed out along with the corresponding waste stream codes. After finding all potential incompatibilities for a given waste stream code, the program moves on to the next waste stream code until all waste stream codes have been processed.

To ensure accuracy, the reference database was printed and checked against the EPA document for chemical compatibility, and the WTWBIR waste stream database was printed and checked against the original WTWBIR forms from the generator sites. The list of potential chemical incompatibilities reported by the program was hand checked using the EPA document as a reference to assure proper functioning of the program. All potential chemical incompatibilities were then evaluated on a case-by-case basis to identify which, if any, of the reactions could occur, given the nature of the waste, and the its chemical constituents, and final waste form.

Waste streams 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 its waste. The chemical components found in each waste generation process are determined by examination of 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 waste container.

In addition to the chemicals listed in Appendix 2 of the EPA document (Hatayama et al., 1980), the following components that exhibit toxicity characteristics defined under 40 CFR §261.24 were added to the chemical list in trace (<1 weight percent) quantities:

Group 3 Acids, Organic
2,4-D
2,4,5-TP (Silvex)

Group 17 Halogenated Organics
Methoxychlor
Toxaphene
2,4-D
Hexachlorobutadiene
Hexachloroethane
Tetrachloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

All hazardous constituents listed in the Part A Permit are present in the chemical lists and accounted for in the compatibility analysis.

The compounds listed on the Material Safety Data Sheet for Radiac™ wash were added to the chemical compatibility assessment. The reactive compounds associated with Radiac™ wash are:

GROUP	COMPOUND	CONCENTRATION
3	citric acid	M
106	water	D

The compounds found in the fire suppressants in use at the WIPP facility were added to evaluate chemical compatibility of these materials with the test wastes. The following reactive compounds were added:

GROUP	COMPOUND	CONCENTRATION
14	diethylene glycol monobutyl ether	D
15	fluorosurfactants	D
106	water	D

Ansulite 6 percent AFFF (AFC-3) contains diethylene glycol monobutyl ether, fluorosurfactants, and water. The FORAY Dry Chemical Extinguishing Agent contains potassium aluminum silicate, magnesium aluminum silicate, monoammonium phosphate, ammonium sulfate, and methyl hydrogen polysiloxane, which are not hazardous reactive constituents.

To account for packaging, container, and backfill materials, the following components were added to the database for each content code in dominant (>10 weight %) quantities:

Group 10 Caustics
Magnesium Oxide

Group 23 Metals, other elemental and alloys as sheets, rods, moldings, drops, etc.
Low Carbon Steel D

Group 101 Combustible Materials
Polyethylene D

The chemical concentration levels are reported as either Trace (T) (<1% by weight), Minor (M) (1-10%), or Dominant (D) (>10%). The chemical list is divided into groups based on chemical properties and structure (e.g., acids, caustics, metals, etc.). 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.

Possible chemical incompatibilities between compounds present in trace quantities (<1 percent by weight) and compounds present in concentrations $\geq$ 1 percent by weight (i.e., D x T, D x T1, D x T2, D x T3, M x T, M x T1, M x T2, or M x T3) are included in this report. However, interactions between compounds present in trace quantities (<1 percent by weight) and compounds present in concentrations $\leq$ 1 percent by weight do not pose an incompatibility problem for the following reasons:

- The trace chemicals reported by the sites are in concentrations well below the trace limit of 1 weight percent. Sampling programs show that the concentration levels of these compounds are significantly lower than the upper limit of 1 percent.

- 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 waste containers.

- Because of restrictions imposed by the 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 (EPA, 1988) (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 Resource Conservation and Recovery Act 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.

- Total trace chemicals within a payload container are limited to less than 5 weight percent.

All potential incompatibilities between trace, minor, and dominant compounds have been analyzed on a case-by-case basis for each waste stream reported in Table C-2 (Chapter C). Some chemicals listed as being present in the waste have reacted prior to placement in a waste container. For example, a site listing a caustic (Group 10) and an acid (Group 1) in its waste has only the neutralized product present in an immobilized form. Further reactions of this type do not occur once the waste is neutralized in its final form. An additional constraint on the chemicals and materials that can be present within each waste stream code is their gas generation potential due to radiolysis.

Unresolved incompatibilities between trace and minor, trace and dominant, minor and dominant, minor and minor, or dominant and dominant waste constituents were identified and segregated. These wastes cannot be transported until the incompatibilities are resolved (NuPac, 1989). Table C1-1 presents the chemical compatibility analysis for the modified chemical lists for the

waste streams presented in Table C-2 (Chapter C). A list of explanations describing any noted incompatibilities precedes Table C1-1.

Summary of Potential Incompatibilities for Waste Forms and Container Material

The following is a listing and explanation of compatibility code numbers used to identify potential incompatibilities in Table C1-1. Where incompatibilities are noted, it is important to remember that these potential incompatibilities will be removed prior to shipment of the waste to WIPP. That is, unacceptable waste properties listed in Chapter C, Section C1-b will be removed prior to shipping. Verification of the compatibility of final waste forms will be carried out by the WIPP Generator/Storage Site Waste Screening and Acceptance Audit Program (Appendix C8).

Explanation Code Number Descriptions

00 (1 x 10, 2 x 10, 3 x 10, 5 x 10, 10 x 13, 10 x 17, 10 x 18, 10 x 19, 10 x 21, 10 x 22, 10 x 23, 10 x 24, 10 x 25, 10 x 27, 10 x 32, 10 x 102, 10 x 107) These potential incompatibilities result from the addition of magnesium oxide backfill material. However, the hydration of magnesium oxide results in the formation of brucite ($Mg[OH]_2$), which buffers the pH of the solution at approximately 8.5. Therefore, caustic conditions are not produced by the use of magnesium oxide backfill.

0a. (1 x 4) The potential chemical incompatibility is the possible dehydration or displacement reactions between non-oxidizing mineral acids (Group 1) and alcohols and glycols in waste forms (Group 4) resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

0aa. (1 x 10) The potential chemical incompatibility is the possible acid-base reaction between strong mineral acids (Group 1) and strong caustics (Group 10) resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

0aaa. (1 x 14) The potential chemical incompatibility is the possible hydrolysis reaction between strong mineral acids (Group 1) and ethers (Group 14), resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

0aaaa. (1 x 15) The potential chemical incompatibility is the possible formation of hydrogen fluoride when strong mineral acids (Group 1) mix with inorganic fluorides (Group 15), resulting in toxic gas generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

0b. (1 x 17) The potential chemical incompatibility is the possible reaction between strong mineral acids (Group 1) and halogenated organics (Group 17), resulting in generation of heat and toxic hydrogen halide fumes. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

0bb. (1 x 19) The potential chemical incompatibility is the possible condensation reaction between strong mineral acids (Group 1) and ketones (Group 19), resulting in generation of heat. The potential chemical incompatibility results from reporting trace quantities (<1%) of non-oxidizing acid in generator waste streams. However, the non-oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

1. (1 x 23) The potential chemical incompatibility is the possible reaction between non-oxidizing mineral acids (Group 1) and metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The non-oxidizing mineral acids are present only in trace quantities (<1%) and are neutralized and bound in the cemented waste form. Due to the immobilization and prior reaction of the acids, the materials in this waste stream are considered chemically compatible.

2. (1 x 24) The potential chemical incompatibility is the tendency of non-oxidizing mineral acids (Group 1) to solubilize toxic metals and metal compounds (Group 24). The mineral acids are present only in trace quantities (<1%) and are neutralized and bound in the cemented waste form. Due to the immobilization and prior reaction of the non-oxidizing acids, the materials in this waste stream are considered chemically compatible.

3. (1 x 101) The potential chemical incompatibility is the possible reaction between non-oxidizing mineral acids (Group 1) and combustible materials (Group 101). The mineral acids are present only in trace quantities (<1%) and are neutralized and bound in the cemented waste form. An absorbent has been added to immobilize free liquids. Due to the immobilization and prior reaction of the non-oxidizing acids, the materials in this waste stream are considered chemically compatible.

3a. (1 x 102) The potential chemical incompatibility is the possible violent reaction between non-oxidizing mineral acids (Group 1) and explosives (Group 102). However, explosives are not allowed to be shipped to WIPP unless treatment renders them inert. Additionally, mineral acids are present only in trace quantities (<1%) and are neutralized prior to loading in waste containers. Therefore, the materials in this waste stream are considered chemically compatible.

3aa. (1 x 104) The potential chemical incompatibility is the possible reaction between non-oxidizing mineral acids (Group 1) and strong oxidizing agents (Group 104), resulting in heat and generation of toxic and corrosive gases. However, the mineral acids and oxidizing agents are present in trace quantities (<1%) and neutralized prior to loading in waste containers. Therefore, the materials in this waste stream are considered chemically compatible.

3b. (1 x 106) The potential chemical incompatibility is the possible reaction between mineral acids (Group 1) and water (Group 106), resulting in the generation of heat. This potential incompatibility results from the presence of water in Ansulite™ fire extinguishing agents and/or Radiac™ wash solutions and/or absorbed water. However, the mineral acids are present only in trace quantities (<1%) and are neutralized prior to loading in waste containers. In addition, the presence of any absorbed liquids are immobilized in an absorbent and would not be available for reaction.

3c. (2 x 3) The potential chemical incompatibility is the reaction of oxidizing mineral acids (Group 2) with organic acids (Group 3) resulting in heat and gas generation. The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with oxidizing mineral acids in waste forms is removed.

3d. (2 x 4) The potential chemical incompatibility is the possible dehydration or displacement reactions between oxidizing mineral acids (Group 2) and alcohols and glycols (Group 4), resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3e. (2 x 10) The potential chemical incompatibility is the possible acid-base reaction between oxidizing mineral acids (Group 2) and strong caustics (Group 10), resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3ee. (2 x 13) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and esters (Group 13), resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3f. (2 x 14) The potential chemical incompatibility is the possible hydrolysis reaction between oxidizing mineral acids (Group 2) and ethers (Group 14), resulting in heat generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3g. (2 x 15) The potential chemical incompatibility is the possible formation of hydrogen fluoride when oxidizing mineral acids (Group 2) mix with inorganic fluorides (Group 15), resulting in toxic gas generation. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3gg. (2 x 16) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and aromatic hydrocarbons (Group 16). Oxidation of the hydrocarbon may produce enough heat to ignite the mixture. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3h. (2 x 17) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and halogenated organics (Group 17), resulting in generation of heat and toxic hydrogen halide fumes. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3i. (2 x 19) The potential chemical incompatibility is the possible condensation reaction between oxidizing mineral acids (Group 2) and ketones (Group 19), resulting in generation of heat. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

3j. (2 x 20) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and mercaptans (Group 20), resulting in generation of heat and toxic hydrogen sulfide fumes. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

4. (2 x 23) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The oxidizing mineral acids are present only in trace quantities (<1%) and are reacted prior to loading in waste containers. In addition, the oxidizing mineral acids are fixed in the solidified product and would not be available to react with the metal.

5. (2 x 23) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The oxidizing mineral acids are present only in trace quantities (<1%) as residues on glass or rubber gloves, and not as free liquids that could react with metals.

6. (2 x 24) The potential chemical incompatibility is the solubilization of toxic metals and metal compounds (Group 24) in oxidizing mineral acids (Group 2). The oxidizing mineral acids are present only in trace quantities (<1%) and are reacted prior to loading in waste containers. In addition, the oxidizing mineral acids are fixed in the solidified product and would not be available to react with the metal.

7. (2 x 24) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and toxic metals and compounds (Group 24). The oxidizing mineral acids are present only in trace quantities (<1%) as residues on glass or rubber gloves, and not as free liquids that could react with metals.

7a. (2 x 27) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and nitro compounds (Group 27), resulting in generation of heat and toxic nitrogen oxide fumes. The potential chemical incompatibility results from reporting trace quantities (<1%) of oxidizing acid in generator waste streams. However, the oxidizing mineral acids are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

8. (2 x 101) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and combustible materials (Group 101). The oxidizing mineral acids are present only in trace quantities (<1%) as residues on glass or rubber gloves, and not as free liquids that could react with metals.

9. (2 x 101) The potential chemical incompatibility is the possible decomposition of combustible materials (Group 101) by the oxidizing mineral acids (Group 2). The oxidizing mineral acids are present only in trace quantities (<1%) and are reacted prior to loading in waste containers. In addition, the oxidizing mineral acids are fixed in the solidified product and would not be available to react with the combustible materials.

9a. (2 x 102) The potential chemical incompatibility is the possible violent reaction between oxidizing mineral acids (Group 2) and explosives (Group 102). However, explosives are not allowed to be shipped to WIPP unless treatment renders them inert. Additionally, mineral acids are present only in trace quantities (<1%) and are neutralized prior to loading in waste containers. Therefore, the materials in this waste stream are considered chemically compatible.

10. (2 x 106) The potential chemical incompatibility is the possible dissolution of oxidizing mineral acids (Group 2) by water (Group 106). The oxidizing mineral acids are present only in trace quantities (<1%) and reacted prior to loading in waste containers. Both the water and the oxidizing mineral acids are fixed in the solidified product and would not be available for reaction.

10a. (2 x 106) The potential chemical incompatibility is the possible reaction between oxidizing mineral acids (Group 2) and water (Group 106), resulting in the generation of heat. This potential incompatibility results from the presence of water in Ansulite™ fire extinguishing agents and/or Radiac™ wash solutions and/or absorbed water. However, the mineral acids are present only in trace quantities (<1%) and are neutralized prior to loading in waste containers. In addition, the presence of any absorbed liquids are immobilized in an absorbent and would not be available for reaction.

11. (3 x 4) The potential chemical incompatibility is the possible reaction between organic acids (Group 3) and alcohols and glycols (Group 4). The organic acids are immobilized in a cement matrix and not available to react with the alcohols and glycols. The alcohols and glycols are also immobilized in the solidified product.

11aa. (3 x 4) The potential chemical incompatibility is the heat generated by polymerization of alcohols and glycols (Group 4) by organic acids (Group 3). Carboxylic acids with α-halogen substituents, or α- or β-hydroxyl substituents (e.g., citric acid) are the main concern among the organic acids (Group 3). The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with alcohols and glycols (Group 4) that are dispersed and fixed in waste forms is removed.

11b. (3 x 10) The potential chemical incompatibility is the possibility of acid-base reactions. The organic acids (Group 3) are neutralized in a cement matrix and are not available to react with the Caustics (Group 10). Thus, this potential chemical incompatibility would not occur.

11c. (3 x 10) The potential chemical incompatibility is the heat generated by reactions of organic acids (Group 3) with caustics (Group 10). The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with caustics in test waste forms is removed. The caustic in the waste forms is calcium oxide. Thus, the more significant incompatibility is potential hydrolysis reaction between water and calcium oxide to release heat. Because the calcium oxide is dispersed in the wastes, reaction is considered unlikely.

11d. (3 x 15) The potential chemical incompatibility is toxic and corrosive fumes generated by reactions of organic acids (Group 3) with metal fluoride salts (Group 15). The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with fluoride salts in waste forms is removed.

12. (3 x 24) The potential chemical incompatibility is the possible reaction between organic acids (Group 3) and toxic metals and compounds (Group 24). The organic acids are basified prior to cementation and do not exist as free acids in the resulting product. Based on the immobilization of the acids, reactions are considered highly unlikely. In this case, solubilization is not possible.

12aa. (3 x 24) The potential chemical incompatibility is solubilization of toxic metals (Group 24) by complexation with organic acids (Group 3). The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with toxic metals in waste forms is removed.

12bbb. (3 x 104) The potential chemical incompatibility is decomposition of the hydrocarbon moiety of organic acids (Group 3) by oxidizing agents (Group 104) resulting in heat and gas formation. The potential chemical incompatibility results from the use of citric acid in Radiac™ wash solutions. The solid citric acid is diluted during preparation of the Radiac™ wash and is often further diluted prior to use for decontamination. As a result, the potential for reactions of solid citric acid with oxidizing agents that are dispersed and fixed in waste forms is removed.

12bb. (4 x 104) The potential chemical incompatibility is formation of unstable compounds by reaction of alcohols and glycols (Group 4) with oxidizing agents (Group 104). However the alcohols and glycols are present as trace quantities (<1%) in the waste stream, and they are further isolated by dissemination within the waste stream. Additionally, oxidizing agents must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

12b. (7 x 17) The potential chemical incompatibility between amines (Group 7) and halogenated organics (Group 17) would not occur because the halogenated organics are solidified and are not available for reaction.

12c. (7 x 24) The potential chemical incompatibility is the possible increase in the solubility of toxic metal compounds in water due to amines acting as potential surfactants. The amines are present only in trace (<1%) and are immobilized through absorption on sorbent materials. Also, these solid waste forms usually contain very little water and excess sorbents are added to waste containers to sorb any fluids.

12d. (7 x 104) The potential chemical incompatibility is formation of toxic nitrogen oxide fumes by reaction of amines (Group 7) with oxidizing agents (Group 104). However, the alcohols and glycols are present as trace quantities (<1%) in the waste stream, they are further isolated by dissemination within the waste stream. Additionally, oxidizing agents must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

12e. (8 x 23) The potential chemical incompatibility is combustion of some azo compounds (Group 8) on contact with surfaces of metal sheets, rods, drops, etc (Group 23). However the azo compounds are present as trace quantities (<1%) in the waste stream and are further isolated by dissemination within the waste stream. Therefore, spontaneous combustion by reaction with metal surfaces is unlikely.

12f. (8 x 106) The potential chemical incompatibility is the generation of nitrogen gas by reaction of some azo compounds (Group 8) with water (Group 106). This potential incompatibility results from the presence of water in Ansulite™ fire extinguishing agents and/or Radiac™ wash solutions and/or absorbed water. However, the azo compounds are present only in trace quantities (T<1%) and are disseminated in the waste containers, which minimizes their potential to form nitrogen gas. In addition, the presence of any absorbed liquids are immobilized in an absorbent and would not be available for reaction.

13. (10 x 17) The potential chemical incompatibility is the possible reaction between caustics (Group 10) and halogenated organics (Group 17). The caustic in this content code is calcium oxide, a solid, which is dispersed in the chloride salts. The halogenated

organics are present in only trace quantities (T<1%) and are absorbed, immobilized, or solidified. Due to the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely.

13a. (10 x 19) The potential chemical incompatibility is the possible self-condensation of ketones (Group 19) catalyzed by caustics (Group 10). The caustic in this content code is calcium oxide, a solid, which is dispersed in the chloride salts. Due to the immobilization of the calcium oxide in salt, reactions are considered highly unlikely.

14. (10 x 23) The potential incompatibility is the possible reaction between caustics (Group 10) metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The caustic in this waste stream code is calcium oxide, a solid, which is dispersed in the chloride salts. Due to the immobilization of the calcium oxide in salt, dissolution of metals in caustics is not possible.

15. (10 x 23) The potential incompatibility is the possible dissolution of metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23) in caustics (Group 10). The caustics are present only in trace quantities (<1%) and are reacted prior to loading in waste containers. In addition, the caustics are fixed in the cemented sludge and would not be available to react with the metals.

16. (10 x 24) The potential chemical incompatibility is the possible solubilization of toxic metals (Group 24) in caustics (Group 10). The caustic in this content code is calcium oxide, a solid, which is dispersed in the chloride salts. In this case, solubilization is not possible.

16a. (10 x 24) The potential incompatibility is the possible solubility of toxic metals (Group 24) in caustics (Group 10). The caustics are present only in trace (<1% quantities and are reacted prior to loading in waste containers. In addition, the caustics are fixed in the cemented sludge and would not be available to react with the metals.

16b. (10 x 27) The potential chemical incompatibility is the formation of salts from nitro alkanes (Group 27) and caustics (Group 10) in the presence of water. The only caustic in this content code is calcium oxide, a solid, which is dispersed in the chloride salts. In addition, liquids are immobilized through absorption on sorbent materials. Due to the immobilization of the caustic in the fused salt, this reaction would not occur.

16c. (10 x 102) The potential chemical incompatibility is the possible violent reaction between caustics (Group 10) and explosives (Group 102) due to the generation of heat. However, explosives are not allowed to be shipped to WIPP unless treatment renders them inert. Additionally, caustics are present only in minor quantities (<10%) and are

neutralized prior to loading in waste containers. Therefore, the materials in this waste stream are considered chemically compatible.

17. (10 x 107) This potential incompatibility is an artifact of the EPA method. Calcium oxide appears in Groups 10 and 107, and is compatible within itself.

17a. (14 x 104) This potential incompatibility is the reaction of ethers (Group 14) with strong oxidizers (Group 104) to produce heat, and possibly ignition or explosions. This incompatibility arises from the presence of diethylene glycol monobutyl ether in Ansulite™ fire extinguishing agents. However, the strong oxidizers are present in trace quantities (<1%) and disseminated in the waste, making ignition or explosions unlikely in the event the fire extinguishers are used.

17b. (14 x 107) This potential chemical incompatibility is the reaction of ethers (Group 14) with water reactives (Group 107). This incompatibility arises from the presence of diethylene glycol monobutyl ether in Ansulite™ fire extinguishing agents. However, the water reactive substances are present in trace quantities (<1%) and disseminated in the waste, making reactions unlikely in the event the fire extinguishers are used.

18. (15 x 107) This potential chemical incompatibility is the reaction of fluorides (Group 15) and water reactive substances (Group 107). The solid fluorides are present in only trace quantities (T<1%) and form part of the pyrochemical salt matrix. Calcium oxide, the only water reactive substance present, is a solid dispersed in the pyrochemical salt matrix. These salts always occur with each other and are compatible.

18a. (17 x 20) The potential chemical incompatibility is the possible reaction between halogenated organics (Group 17) and mercaptans (Group 20), resulting in generation of heat. The potential chemical incompatibility results from reporting trace quantities (<1%) of halogenated organics and mercaptans in generator waste streams. However, the chemicals are neutralized prior to packaging, and the materials in this waste stream are considered chemically compatible.

19. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are present in only trace quantities (T1<1%) and are fixed in cemented sludge and would not be available to react with the metals.

20. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys, as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are present in only trace quantities (T<1%) and are absorbed on combustibles. The halogenated organics are not present as free liquids to react with the metals.

21. (17 x 23) The potential chemical incompatibility is the potential reaction between halogenated organics (Group 17) and metals and other elemental alloys as sheets, rods, drops, moldings, etc. (Group 23). Aluminum and magnesium in bulk forms are especially reactive with halogenated hydrocarbons, releasing much heat. 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) and are immobilized through absorption on sorbent materials or solidification with calcium silicates or gypsum-base processes. Second, although the metals of concern may occur in dominant quantities in the content code, the metals only occur as large pieces and not in powder form. Due to the trace quantities of immobilized halogenated organics and the non-powder size of the metal pieces, any reaction that may occur will produce minimal heat.

22. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys, as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are present in only very small trace quantities (<1 part per million) as residual films on the glass and not as free liquids that could react with metals.

23. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are present in only trace quantities (<1%) as coatings on solid organic materials and are not present as free liquids that could react with metals.

24. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are present in only trace quantities (<1%) as coating on the inorganic solid materials and are not present as free liquids that could react with metals.

25. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are fixed in the cemented product and would not be available for reaction.

26. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys, as sheets, rods, moldings, drops, etc. (Group 23). The halogenated organics are fixed in the solidified product and are not available for reaction with the metals.

27. (17 x 23) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with metals and other elemental alloys, as sheets, rods, moldings, drops, etc. (Group 23). An absorbent has been added to immobilize any free liquids that may exist. Due to the trace quantities and immobilization of the halogenated organics, reactions are highly unlikely.

28. (17 x 104) The potential chemical incompatibility is the reaction of halogenated organics (Group 17) with oxidizing agents (Group 107), resulting in the liberation of heat and formation of toxic gases. The halogenated organics are present in only trace quantities (<1%) and are not in the form of free liquids. Additionally, the oxidizing agents are neutralized prior to loading waste containers. Therefore, based on the neutralization of the oxidizing agents, reactions are considered highly unlikely.

28a. (18 x 106) The potential incompatibility is the possible reaction between isocyanates (Group 18) with water (Group 106). The isocyanates are present only in trace quantities (<1%). The water is usually fixed in the solidified product and would not be available for reaction.

28aa. (18 x 106) The potential chemical incompatibility is between isocyanates (Group 18) and water (Group 106) to generate carbon dioxide gas and heat. The potential chemical incompatibility results from the use of water in Ansulite™ fire extinguishing agents and Radiac™ wash solutions. However, isocyanates in the waste forms are present in trace quantities (<1%), are neutralized and fixed prior to loading the waste containers, and are not available for reaction. Therefore, the final waste form contains compatible materials.

28aaa. (19 x 20) The potential chemical incompatibility is the reaction between ketones (Group 19) and mercaptans (Group 20), resulting in heat generation. These chemicals are present only in trace quantities (<1%) as coatings on laboratory glassware. Therefore, contact between the chemicals, if it occurs, will be limited.

28b. (21 x 101) The potential chemical incompatibility is the reaction of alkali and alkaline earth metals (Group 21) with residual water present in the combustible materials (101), resulting in heat generation and ignition of the combustible materials. However, the combustible materials are polyethylene and polyvinyl chloride packaging materials which contain no residual water. Additionally, alkali and alkaline earth metals must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

28c. (21 x 104) The potential chemical incompatibility is the violent reaction between alkali and alkaline earth metals (Group 21) and oxidizing agents (Group 104). Oxidizing agents are present in trace quantities (<1%) and are neutralized prior to packaging.

Additionally, alkali and alkaline earth metals must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

28d. (21 x 106) The potential chemical incompatibility is the violent reaction between alkali and alkaline earth metals (Group 21) and water (Group 106), resulting in the evolution of hydrogen gas and formation of strong caustics. However, alkali and alkaline earth metals must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

28e. (22 x 106) The potential chemical incompatibility is the reaction of metal powders (Group 22) with water (Group 106), resulting in the evolution of hydrogen gas and production of heat. Metal powders or shavings are present as trace quantities (<1%) on paper, rags, and rubber. This potential incompatibility results from the presence of water in Ansulite™ fire extinguishing agents and/or Radiac™ wash solutions and/or absorbed water. However, metal powders or shavings are present as trace quantities (<1%) on paper, rags, and rubber, which minimizes their potential to form hydrogen gas. In addition, the presence of any absorbed liquids are immobilized in an absorbent and would not be available for reaction.

29. (23 x 104) The potential incompatibility is the possible reaction between metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23) and oxidizing agents (Group 104). The oxidizing agents are present only in trace quantities (<1%) and reacted prior to loading in waste containers. The waste is mixed with cement to absorb any residual liquid. Due to the immobilization and prior reaction of the oxidizing agents, reactions are highly unlikely.

30. (23 x 104) The potential incompatibility is the possible reaction between metals, other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23) and oxidizing agents (Group 104). The oxidizing agents are present only in trace quantities (<1%) and dissolved in aqueous solutions that were cemented into a solid monolith-type structure. Due to the immobilization and prior reaction of the oxidizing agents, reactions will not occur.

31. (23 x 107) The potential incompatibility is the possible reaction between metals and other elemental alloys, as sheets, rods, moldings, drops, etc. (Group 23) and water reactive substances (Group 107). The outer low carbon steel drum is the only Group 23 metal found in this content code. Calcium oxide, the only water reactive substance present, is a solid dispersed in the chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely.

32. (23 x 107) The potential incompatibility is the possible reaction between metals and other elemental alloys as sheets, rods, moldings, drops, etc. (Group 23) and water reactive substances (Group 107). Calcium oxide, the only water reactive substance present, is a solid dispersed in the chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely.

33. (24 x 106) The potential chemical incompatibility is the possible solubilization of toxic metals (Group 24), which is not a concern since the water (Group 106) from the sludge is fixed in the cemented product and would not be available for reaction.

33a. (24 x 106) The potential chemical incompatibility is the possible solubilization of toxic metals (Group 24) by water (Group 106). This potential chemical incompatibility results from the use of water in Ansulite™ fire extinguishing agents or Radiac™ wash solutions. Metals in the test waste forms are present in trace quantities (T<1%) as large pieces and not in powdered form. As a result, only minimal heat is expected to be formed.

34. (24 x 106) The potential incompatibility is the possible solubilization of toxic metals (Group 24). The water (Group 106) is fixed the in the cemented product and would not be available for reaction.

35. (24 x 107) The potential incompatibility is the possible reaction between toxic metals and metal compounds (Group 24) and water reactive substances (Group 107). The metals are present only in trace quantities (<1% by weight). Calcium oxide, the only water reactive substance present, is a solid dispersed in the chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely.

36. (24 x 107) The potential incompatibility is the possible reaction between toxic metals and metal compounds (Group 24) and water reactive substances (Group 107). Calcium oxide, the only water reactive substance present, is dispersed in chloride salts. Based on the immobilization of the calcium oxide in the salts, reactions are considered highly unlikely.

36a. (25 x 101) The potential chemical incompatibility is the reaction of nitrides (Group 25) with residual water present in the combustible materials (Group 101), resulting in formation of ammonia gas, heat generation, and possible ignition of the combustible materials. However, the combustible materials are polyethylene and polyvinyl chloride packaging materials which contain no residual water. Additionally, any reactive nitrides must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

36aa. (25 x 106) The potential chemical incompatibility is the reaction of nitrides (Group 25) with water present in the combustible materials (101), resulting in formation of ammonia gas, heat generation, and possible ignition of the combustible materials. However, any reactive nitrides must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

36b. (27 x 104) The potential incompatibility is the possible reaction between nitro compounds (Group 27) and oxidizing agents (Group 107). Calcium oxide, the only water reactive substance present, is dispersed in chloride salts. Reactive oxidizing agents must be neutralized prior to shipment to WIPP. Based on the immobilization of the calcium oxide in the salts and neutralization of oxidizing agents, reactions are considered highly unlikely.

36c. (29 x 104) The potential incompatibility is the possible reaction between saturated aliphatics (Group 29) and oxidizing agents (Group 104). However, reactive oxidizing agents must be neutralized prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

36d. (101 x 102) The potential incompatibility is the possible oxidation reaction between combustibles (Group 101) and explosives (102). However, explosives must be reacted prior to shipment to WIPP. Therefore, the final waste form will contain compatible materials.

37. (101 x 104) The potential incompatibility is the possible reaction between combustible materials (Group 101) and oxidizing agents (Group 104). The oxidizing agents are present only in trace quantities (<1%) and are reacted prior to loading in waste containers. In addition, cement is added to absorb any residual liquid. Due to the immobilization and prior reaction of the oxidizing agents, this content code is considered to be chemically compatible.

38. (101 x 104) The potential incompatibility is the possible reaction between combustible materials (Group 101) and oxidizing agents (Group 104). The oxidizing agents are present only in trace quantities (<1%) and are fixed in the solidified product. Due to the immobilization and prior reaction of the oxidizing agents, this content code is considered to be chemically compatible.

39. (101 x 107) The potential incompatibility is the possible reaction between combustible and flammable materials (Group 101) and water reactive substances (Group 107). The dominant combustible material in Group 101 is the polyethylene rigid drum liner. Calcium oxide, the only water reactive substance present, is a solid dispersed in the chloride salts. Based on the immobilization of the calcium oxide in the salt, reactions are considered highly unlikely.

40. (102 x 104) The potential incompatibility is the possible violent reaction between explosives (Group 102) and oxidizing agents (Group 104). However, both of these groups must be neutralized before shipment to WIPP. Therefore, the final waste form will contain compatible materials.

41. (104 x 107) The potential incompatibility is the possible violent reaction between oxidizing agents (Group 104) and water reactives (Group 107). However, both of these groups must be neutralized before shipment to WIPP. Therefore, the final waste form will contain compatible materials.

List of References for Appendix C1

Hatayama, H. K., J. J. Chen, E. R. de Vera, R. D. Stephens, and D. L. Storm, 1980, "A Method for Determining the Compatibility of Hazardous Wastes," EPA-600/2-80-076, U.S. Environmental Protection Agency, Cincinnati, Ohio.

Nuclear Packaging, Inc. (NuPac), 1989, "Safety Analysis Report for the TRUPACT-II Shipping Package," Revision 4, Appendix 2.10.12, Nuclear Packaging, Inc., Federal Way, Washington.

U.S. Department of Energy (DOE), 1989, "TRUPACT-II Content Codes" (TRUCON), Revision 3, DOE/WIPP 89-004, U.S. Department of Energy, Carlsbad, New Mexico.

U.S. Environmental Protection Agency (EPA), 1988, Code of Federal Regulations, Part 190 to 399, U.S. Government Printing Office, Washington, D.C.

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TABLES

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	IN W198	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
COMBUSTIBLE	IN W198	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x T	GF H	00
		(10 x 23)			
COMBUSTIBLE	IN W198	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	IN W198	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	IN W202	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
COMBUSTIBLE	IN W202	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x T	GF H	00
		(10 x 23)			
COMBUSTIBLE	IN W202	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	IN W202	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	IN W205	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	IN W205	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x T	GF H	00
COMBUSTIBLE	IN W205	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
COMBUSTIBLE	IN W205	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
COMBUSTIBLE	IN W250	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC (7 x 24)	T x D	S	12c
COMBUSTIBLE	IN W250	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W250	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
COMBUSTIBLE	IN W250	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
COMBUSTIBLE	IN W252	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC (7 x 24)	T x D	S	12c
COMBUSTIBLE	IN W252	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	IN W252	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
COMBUSTIBLE	IN W252	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
COMBUSTIBLE	IN W254	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC (7 x 24)	T x D	S	12c
COMBUSTIBLE	IN W254	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W254	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
COMBUSTIBLE	IN W254	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
COMBUSTIBLE	IN W256	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W256	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x M	S	00
COMBUSTIBLE	IN W256	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	M x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	IN W325	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W327	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W330	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	IN W330	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
COMBUSTIBLE	IN W330	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
COMBUSTIBLE	IN W336	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS (1 x 10)	T1 x D	H	00
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	T1 x D	H	0aaa
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	T1 x D	GT	0aaaa

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T1 x D	GF H F	1
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T1 x D	H G	3
COMBUSTIBLE	LA W004	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T1 x D	H	3b
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T1 x D	H	00
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T1 x D	H F	3f
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T1 x D	GT	3g
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T1 x D	GF H F	4
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T1 x D	H F GT	9
COMBUSTIBLE	LA W004	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T1 x D	H	10a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LA W004	ACIDS, ORGANIC x CAUSTICS	T x D	H	00
		(3 x 10)			
COMBUSTIBLE	LA W004	ACIDS, ORGANIC x FLUORIDES, INORANIC	T x D	GT	11d
		(3 x 15)			
COMBUSTIBLE	LA W004	CAUSTICS x HALOGENATED ORGANICS	D x T1	H	00
		(10 x 17)			
COMBUSTIBLE	LA W004	CAUSTICS x KETONES	D x T	H	00
		(10 x 19)			
COMBUSTIBLE	LA W004	CAUSTICS x METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES	D x T2	GF H	00
		(10 x 22)			
COMBUSTIBLE	LA W004	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
COMBUSTIBLE	LA W004	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T1	S	00
		(10 x 24)			
COMBUSTIBLE	LA W004	CAUSTICS x NITRIDES	D x T1	U	00
		(10 x 25)			
COMBUSTIBLE	LA W004	CAUSTICS x NITRO COMPOUNDS	D x T1	H E	00
		(10 x 27)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LA W004	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES (10 x 32)	D x T1	H E	00
COMBUSTIBLE	LA W004	CAUSTICS x EXPLOSIVES (10 x 102)	D x T2	H E	00
COMBUSTIBLE	LA W004	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x T	EXTREMELY	00
COMBUSTIBLE	LA W004	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T1	H F	17a
COMBUSTIBLE	LA W004	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x T	EXTREMELY	17b
COMBUSTIBLE	LA W004	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x T	EXTREMELY	18
COMBUSTIBLE	LA W004	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T1 x D	H F	20
COMBUSTIBLE	LA W004	METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES x WATER & MIXTURES CONTAINING WATER (22 x 106)	T2 x D	GF H	28e
COMBUSTIBLE	LA W004	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T1	H F	29

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LA W004	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x WATER REACTIVE SUBSTANCES (23 x 107)	D x T	EXTREMELY	31
COMBUSTIBLE	LA W004	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T1 x D	S	33a
COMBUSTIBLE	LA W004	NITRIDES x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (25 x 101)	T1 x D	H GF F	36a
COMBUSTIBLE	LA W004	NITRIDES x WATER & MIXTURES CONTAINING WATER (25 x 106)	T1 x D	GF H	36aa
COMBUSTIBLE	LA W004	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T2	H E	36d
COMBUSTIBLE	LA W004	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T1	H F G	38
COMBUSTIBLE	LA W004	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x T	EXTREMELY	39
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS (1 x 10)	T x D	H	00
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	T x D	H	0aaa

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	T x D	GT	0aaaa
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T x D	GF H F	1
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T x D	H G	3
COMBUSTIBLE	LL M001	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T x D	H	3b
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LL M001	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	10
		(2 x 106)			
COMBUSTIBLE	LL M001	ACIDS, ORGANIC x CAUSTICS	T x D	H	00
		(3 x 10)			
COMBUSTIBLE	LL M001	ACIDS, ORGANIC x FLUORIDES, INORANIC	T x D	GT	11d
		(3 x 15)			
COMBUSTIBLE	LL M001	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
COMBUSTIBLE	LL M001	CAUSTICS x KETONES	D x T	H	00
		(10 x 19)			
COMBUSTIBLE	LL M001	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS	D x T	GF H	00
		(10 x 21)			
COMBUSTIBLE	LL M001	CAUSTICS x METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES	D x T	GF H	00
		(10 x 22)			
COMBUSTIBLE	LL M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
COMBUSTIBLE	LL M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LL M001	CAUSTICS x EXPLOSIVES (10 x 102)	D x T	H E	00
COMBUSTIBLE	LL M001	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T	H F	17a
COMBUSTIBLE	LL M001	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	26
COMBUSTIBLE	LL M001	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	T x D	H G F	28b
COMBUSTIBLE	LL M001	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	T x D	GF H	28d
COMBUSTIBLE	LL M001	METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES x WATER & MIXTURES CONTAINING WATER (22 x 106)	T x D	GF H	28e
COMBUSTIBLE	LL M001	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T	H F	30
COMBUSTIBLE	LL M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
COMBUSTIBLE	LL M001	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T	H E	36d

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	LL M001	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG	D x T	H F G	38
		(101 x 104)			
COMBUSTIBLE	RL M009	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
COMBUSTIBLE	RL M010	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
COMBUSTIBLE	RL M010	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	RL M010	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	RL M011	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
COMBUSTIBLE	RL M011	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	RL M011	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	RL M012	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	RL M012	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	RL M012	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
COMBUSTIBLE	RL M013	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
COMBUSTIBLE	RL M013	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
COMBUSTIBLE	RL M013	CAUSTICS x KETONES (10 x 19)	D x T	H	00
COMBUSTIBLE	RL M013	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	RL M013	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
COMBUSTIBLE	RL M013	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
COMBUSTIBLE	RL M014	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	RL M014	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	RL M014	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	RL M015	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
COMBUSTIBLE	RL M015	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	RL M015	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
COMBUSTIBLE	RL M016	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
COMBUSTIBLE	RL M016	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
COMBUSTIBLE	RL M016	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
COMBUSTIBLE	RL M016	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	20
		(17 x 23)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
COMBUSTIBLE	RL M016	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
COMBUSTIBLE	RL M022	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
COMBUSTIBLE	RL M022	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
COMBUSTIBLE	RL M022	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
COMBUSTIBLE	RL M023	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
FILTER	AW M003	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
FILTER	AW M003	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
FILTER	AW M003	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
FILTER	IN W214	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
FILTER	IN W214	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
FILTER	IN W214	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
FILTER	RF W066	CAUSTICS x HALOGENATED ORGANICS	D x T1	H	00
		(10 x 17)			
FILTER	RF W066	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
FILTER	RF W066	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T1 x D	H F	21
		(17 x 23)			
FILTER	RF W067	CAUSTICS x HALOGENATED ORGANICS	D x T1	H	00
		(10 x 17)			
FILTER	RF W067	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
FILTER	RF W067	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T1 x D	H F	23
		(17 x 23)			
GRAPHITE	IN W272	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
GRAPHITE	IN W272	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
GRAPHITE	IN W272	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
GRAPHITE	IN W275	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
GRAPHITE	IN W275	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
GRAPHITE	IN W275	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
GRAPHITE	IN W276	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
GRAPHITE	IN W276	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
GRAPHITE	IN W276	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
GRAPHITE	RF W060	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
GRAPHITE	RF W060	CAUSTICS x METALS & METAL COMPOUNDS,TOXIC	D x M	S	00
		(10 x 24)			
GRAPHITE	RF W060	METALS & METAL COMPOUNDS,TOXIC x WATER & MIXTURES CONTAINING WATER	M x D	S	33a
		(24 x 106)			
HETEROGENEOUS	AW W020	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	AW W020	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
HETEROGENEOUS	AW W020	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN M002	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN M002	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
HETEROGENEOUS	IN M002	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W139	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W139	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
HETEROGENEOUS	IN W139	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
HETEROGENEOUS	IN W169	AMINES, ALIPHATIC & AROMATIC x HALOGENATED ORGANICS (7 x 17)	D x T	H G	12b
HETEROGENEOUS	IN W169	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC (7 x 24)	D x T	S	12c
HETEROGENEOUS	IN W169	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W169	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W169	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W169	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	IN W169	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W170	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
HETEROGENEOUS	IN W170	CAUSTICS x KETONES (10 x 19)	D x T	H	00
HETEROGENEOUS	IN W170	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W170	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W170	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
HETEROGENEOUS	IN W171	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
HETEROGENEOUS	IN W171	CAUSTICS x KETONES (10 x 19)	D x T	H	00
HETEROGENEOUS	IN W171	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W171	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W171	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
HETEROGENEOUS	IN W172	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W172	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W172	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	33a
HETEROGENEOUS	IN W186	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W186	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W186	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W186	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	IN W186	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W189	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W189	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
HETEROGENEOUS	IN W189	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
HETEROGENEOUS	IN W197	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W197	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x T	GF H	00
HETEROGENEOUS	IN W197	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W197	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
HETEROGENEOUS	IN W203	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W203	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W203	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W204	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W204	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
HETEROGENEOUS	IN W204	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W225	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W225	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
HETEROGENEOUS	IN W225	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W259	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W259	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W259	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W265	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
HETEROGENEOUS	IN W265	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W265	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
HETEROGENEOUS	IN W265	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	24
		(17 x 23)			
HETEROGENEOUS	IN W265	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W269	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W271	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W271	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W271	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W281	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W281	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
HETEROGENEOUS	IN W281	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS	T x D	H	00
		(1 x 10)			
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x ETHERS	T x D	H	0aaa
		(1 x 14)			
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC	T x D	GT	0aaaa
		(1 x 15)			
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	GF H F	1
		(1 x 23)			
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x METALS & METAL COMPOUNDS, TOXIC	T x M	S	2
		(1 x 24)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T x D	H G	3
HETEROGENEOUS	IN W283	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T x D	H	3b
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x METALS & METAL COMPOUNDS, TOXIC (2 x 24)	T x M	S	7
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	8
HETEROGENEOUS	IN W283	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W283	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W283	CAUSTICS x ISOCYANATES (10 x 18)	D x T	H P G	00
HETEROGENEOUS	IN W283	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W283	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x M	S	00
HETEROGENEOUS	IN W283	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T	H F	17a
HETEROGENEOUS	IN W283	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
HETEROGENEOUS	IN W283	ISOCYANATES x WATER & MIXTURES CONTAINING WATER (18 x 106)	T x D	H G	28aa
HETEROGENEOUS	IN W283	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T	H F	30
HETEROGENEOUS	IN W283	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	M x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W283	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T	H F G	37
HETEROGENEOUS	IN W285	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W285	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
HETEROGENEOUS	IN W285	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
HETEROGENEOUS	IN W289	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W289	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W289	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W289	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	IN W289	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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HETEROGENEOUS	IN W291	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
HETEROGENEOUS	IN W291	CAUSTICS x KETONES (10 x 19)	D x T	H	00
HETEROGENEOUS	IN W291	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W302	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	IN W302	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W302	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	IN W323	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	IN W323	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	IN W323	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	IN W329	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W334	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W345	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	IN W351	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	INW269B	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x ALCOHOLS & GLYCOLS	M x T	H	0a
		(1 x 4)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS	M x D	H	0aa 00
		(1 x 10)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x ETHERS	M x D	H	0aaa
		(1 x 14)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC	M x D	GT	0aaaa
		(1 x 15)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x HALOGENATED ORGANICS	M x T	H GT	0b
		(1 x 17)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x KETONES	M x T	H	0bb
		(1 x 19)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x METALS & METAL COMPOUNDS, TOXIC	M x T	S	2
		(1 x 24)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	M x T	H G	3
		(1 x 101)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x EXPLOSIVES	M x T	H E	3a
		(1 x 102)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x OXIDIZING AGENTS, STRONG	M x T	H GT	3aa
		(1 x 104)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER	M x D	H	3b
		(1 x 106)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x ACIDS, ORGANIC	M x T	G H	3c
		(2 x 3)			
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x ALCOHOLS & GLYCOLS	M x T	H F	3d
		(2 x 4)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	M x D	H	3e 00
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	M x D	H F	3f
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	M x D	GT	3g
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x HALOGENATED ORGANICS (2 x 17)	M x T	H F GT	3h
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x KETONES (2 x 19)	M x T	H F	3i
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x METALS & METAL COMPOUNDS, TOXIC (2 x 24)	M x T	S	6 7
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	M x T	H F GT	8 9
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x EXPLOSIVES (2 x 102)	M x T	H E	9a
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	M x D	H	10a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	NT W001	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T x D	H	11b 00
HETEROGENEOUS	NT W001	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T x D	GT	11d
HETEROGENEOUS	NT W001	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	13 00
HETEROGENEOUS	NT W001	CAUSTICS x KETONES (10 x 19)	D x T	H	13a 00
HETEROGENEOUS	NT W001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	16a 00
HETEROGENEOUS	NT W001	CAUSTICS x EXPLOSIVES (10 x 102)	D x T	H E	16c 00
HETEROGENEOUS	NT W001	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T	H F	17a
HETEROGENEOUS	NT W001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a
HETEROGENEOUS	NT W001	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T x M	GF H F	1

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	NT W001	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x M	GF H F	4 5
HETEROGENEOUS	NT W001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	T x M	GF H	15 00
HETEROGENEOUS	NT W001	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x M	H F	20 24
HETEROGENEOUS	NT W001	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	T x D	H G F	28b
HETEROGENEOUS	NT W001	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	M x T	H F	30
HETEROGENEOUS	NT W001	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T	H E	36d
HETEROGENEOUS	NT W001	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T	H F G	38
HETEROGENEOUS	OR W040	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	OR W040	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	OR W040	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS	T x D	H	00
		(1 x 10)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x ETHERS	T x D	H	0aaa
		(1 x 14)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC	T x D	GT	0aaaa
		(1 x 15)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	GF H F	1
		(1 x 23)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	T x D	H G	3
		(1 x 101)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	3b
		(1 x 106)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x CAUSTICS	T x D	H	00
		(2 x 10)			
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x ETHERS	T x D	H F	3f
		(2 x 14)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	8
HETEROGENEOUS	OR W044	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a
HETEROGENEOUS	OR W044	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T2 x D	H	00
HETEROGENEOUS	OR W044	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T2 x D	GT	11d
HETEROGENEOUS	OR W044	AZO COMPOUNDS, DIAZO COMPOUNDS, & HYDRAZINES x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (8 x 23)	T2 x D	H F G	12e
HETEROGENEOUS	OR W044	AZO COMPOUNDS, DIAZO COMPOUNDS, & HYDRAZINES x WATER & MIXTURES CONTAINING WATER (8 x 106)	T2 x D	G	12f
HETEROGENEOUS	OR W044	CAUSTICS x ESTERS (10 x 13)	D x T2	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	OR W044	CAUSTICS x HALOGENATED ORGANICS	D x T2	H	00
		(10 x 17)			
HETEROGENEOUS	OR W044	CAUSTICS x KETONES	D x T2	H	00
		(10 x 19)			
HETEROGENEOUS	OR W044	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
HETEROGENEOUS	OR W044	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
HETEROGENEOUS	OR W044	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES	D x T1	H E	00
		(10 x 32)			
HETEROGENEOUS	OR W044	ETHERS x OXIDIZING AGENTS, STRONG	D x T1	H F	17a
		(14 x 104)			
HETEROGENEOUS	OR W044	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T2 x D	H F	20 22
		(17 x 23)			
HETEROGENEOUS	OR W044	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG	D x T1	H F	29
		(23 x 104)			
HETEROGENEOUS	OR W044	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	OR W044	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG	D x T1	H F G	38
		(101 x 104)			
HETEROGENEOUS	OR W045	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	OR W045	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
HETEROGENEOUS	OR W045	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	OR W047	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
HETEROGENEOUS	OR W047	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
HETEROGENEOUS	OR W047	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
HETEROGENEOUS	RF M002	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
HETEROGENEOUS	RF M002	CAUSTICS x KETONES	D x T	H	00
		(10 x 19)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	RF M002	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RF M002	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
HETEROGENEOUS	RF M002	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	RF W008	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	RF W008	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RF W008	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	23
HETEROGENEOUS	RF W012	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	RF W012	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RF W012	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	RF W036	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	RF W036	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RF W036	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	RF W036	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
HETEROGENEOUS	RF W036	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
HETEROGENEOUS	RL M004	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RL M006	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
HETEROGENEOUS	RL M006	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	RL M006	CAUSTICS x KETONES (10 x 19)	D x T	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	RL M006	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RL M006	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	RL M031	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	RL M201	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	SA W134	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	SR W026	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	SR W026	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	SR W026	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	SR W026	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
HETEROGENEOUS	SR W026	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
HETEROGENEOUS	SR W027	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
HETEROGENEOUS	SR W027	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
HETEROGENEOUS	SR W027	CAUSTICS x KETONES (10 x 19)	D x T	H	00
HETEROGENEOUS	SR W027	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
HETEROGENEOUS	SR W027	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
HETEROGENEOUS	SR W027	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
HETEROGENEOUS	SR W027	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
HETEROGENEOUS	SR W027	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W161	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	IN W161	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
INORGANIC NON-METAL	IN W161	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
INORGANIC NON-METAL	IN W230	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
INORGANIC NON-METAL	IN W230	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	IN W230	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
INORGANIC NON-METAL	IN W240	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T3	H	00
INORGANIC NON-METAL	IN W240	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	IN W240	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W240	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T3 x D	H F	24
INORGANIC NON-METAL	IN W240	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
INORGANIC NON-METAL	IN W243	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
INORGANIC NON-METAL	IN W243	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5
INORGANIC NON-METAL	IN W243	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISCELLANEOUS (2 x 101)	T x D	H F GT	8
INORGANIC NON-METAL	IN W243	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a
INORGANIC NON-METAL	IN W243	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
INORGANIC NON-METAL	IN W243	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
INORGANIC NON-METAL	IN W243	CAUSTICS x KETONES (10 x 19)	D x T	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W243	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	IN W243	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
INORGANIC NON-METAL	IN W243	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
INORGANIC NON-METAL	IN W243	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
INORGANIC NON-METAL	IN W243	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	T x D	H F GT	8
		(2 x 101)			
INORGANIC NON-METAL	IN W245	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	10a
		(2 x 106)			
INORGANIC NON-METAL	IN W245	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
INORGANIC NON-METAL	IN W245	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
INORGANIC NON-METAL	IN W245	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
INORGANIC NON-METAL	IN W245	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	24
		(17 x 23)			
INORGANIC NON-METAL	IN W245	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
INORGANIC NON-METAL	IN W247	ACIDS, MINERAL, OXIDIZING x CAUSTICS	T x D	H	00
		(2 x 10)			
INORGANIC NON-METAL	IN W247	ACIDS, MINERAL, OXIDIZING x ETHERS	T x D	H F	3f
		(2 x 14)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W247	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
INORGANIC NON-METAL	IN W247	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	8
INORGANIC NON-METAL	IN W247	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a
INORGANIC NON-METAL	IN W247	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
INORGANIC NON-METAL	IN W247	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x T	GF H	00
INORGANIC NON-METAL	IN W247	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
INORGANIC NON-METAL	IN W247	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
INORGANIC NON-METAL	IN W249	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	IN W249	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	IN W249	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
INORGANIC NON-METAL	MD M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W026	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
INORGANIC NON-METAL	RF W026	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W026	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
INORGANIC NON-METAL	RF W032	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T3	H	00
INORGANIC NON-METAL	RF W032	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W032	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
INORGANIC NON-METAL	RF W032	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T3 x D	H F	22

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	RF W032	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
INORGANIC NON-METAL	RF W052	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T3	H	00
INORGANIC NON-METAL	RF W052	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W052	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
INORGANIC NON-METAL	RF W052	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T3 x D	H F	22
INORGANIC NON-METAL	RF W052	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
INORGANIC NON-METAL	RF W056	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T3	H	00
INORGANIC NON-METAL	RF W056	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W056	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
INORGANIC NON-METAL	RF W056	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T3 x D	H F	22
INORGANIC NON-METAL	RF W056	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
INORGANIC NON-METAL	RF W057	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
INORGANIC NON-METAL	RF W057	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
INORGANIC NON-METAL	RF W057	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	22
LEAD/CADMIUM METAL WASTE	AW M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	AW M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
LEAD/CADMIUM METAL WASTE	AW M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a 34
LEAD/CADMIUM METAL WASTE	AW M002	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
LEAD/CADMIUM METAL WASTE	AW M002	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
LEAD/CADMIUM METAL WASTE	AW M002	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
LEAD/CADMIUM METAL WASTE	AW W016	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	AW W016	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x M	S	00
LEAD/CADMIUM METAL WASTE	AW W016	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	M x D	S	33a
LEAD/CADMIUM METAL WASTE	AW W022	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	AW W022	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x M	S	00
LEAD/CADMIUM METAL WASTE	AW W022	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	M x D	S	33a 34
LEAD/CADMIUM METAL WASTE	ET M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
LEAD/CADMIUM METAL WASTE	ET M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
LEAD/CADMIUM METAL WASTE	ET M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
LEAD/CADMIUM METAL WASTE	IN M004	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
LEAD/CADMIUM METAL WASTE	IN M004	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x M	S	00
		(10 x 24)			
LEAD/CADMIUM METAL WASTE	IN M004	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	M x D	S	33a
		(24 x 106)			
LEAD/CADMIUM METAL WASTE	IN M005	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
LEAD/CADMIUM METAL WASTE	IN M005	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x M	S	00
		(10 x 24)			
LEAD/CADMIUM METAL WASTE	IN M005	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	M x D	S	33a
		(24 x 106)			
LEAD/CADMIUM METAL WASTE	RF W029	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
LEAD/CADMIUM METAL WASTE	RF W029	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
LEAD/CADMIUM METAL WASTE	RF W029	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x METALS & METAL COMPOUNDS, TOXIC (2 x 24)	T x D	S	7
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	8
LEAD/CADMIUM METAL WASTE	RF W041	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
LEAD/CADMIUM METAL WASTE	RF W041	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	RF W041	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
LEAD/CADMIUM METAL WASTE	RF W041	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
LEAD/CADMIUM METAL WASTE	RL M019	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	RL M019	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
LEAD/CADMIUM METAL WASTE	RL M019	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
LEAD/CADMIUM METAL WASTE	RL M020	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
LEAD/CADMIUM METAL WASTE	RL M020	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
LEAD/CADMIUM METAL WASTE	RL M020	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SALT WASTE	IN M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SALT WASTE	IN M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SALT WASTE	IN M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SALT WASTE	IN W311	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SALT WASTE	IN W311	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SALT WASTE	IN W311	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
SALT WASTE	IN W312	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	14 00
SALT WASTE	IN W312	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T1	S	16 00
SALT WASTE	IN W312	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x M	EXTREMELY	17 00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SALT WASTE	IN W312	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x M	EXTREMELY	17b
SALT WASTE	IN W312	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x M	EXTREMELY	18
SALT WASTE	IN W312	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x WATER REACTIVE SUBSTANCES (23 x 107)	D x M	EXTREMELY	31
SALT WASTE	IN W312	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T1 x D	S	33a
SALT WASTE	IN W312	METALS & METAL COMPOUNDS, TOXIC x WATER REACTIVE SUBSTANCES (24 x 107)	T1 x M	EXTREMELY	35
SALT WASTE	IN W312	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x M	EXTREMELY	39
SALT WASTE	IN W314	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SALT WASTE	IN W314	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SALT WASTE	IN W314	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SALT WASTE	RF W058	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SALT WASTE	RF W058	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T1	S	16 00
SALT WASTE	RF W058	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x M	EXTREMELY	17 00
SALT WASTE	RF W058	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x M	EXTREMELY	17b
SALT WASTE	RF W058	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x M	EXTREMELY	18
SALT WASTE	RF W058	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x WATER REACTIVE SUBSTANCES (23 x 107)	D x M	EXTREMELY	31
SALT WASTE	RF W058	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T1 x D	S	33a
SALT WASTE	RF W058	METALS & METAL COMPOUNDS, TOXIC x WATER REACTIVE SUBSTANCES (24 x 107)	T1 x M	EXTREMELY	35
SALT WASTE	RF W058	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x M	EXTREMELY	39

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOILS	IN W263	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOILS	IN W263	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOILS	IN W263	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOILS	RL M007	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOILS	RL M007	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOILS	RL M007	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	GF H F	4
		(2 x 23)			
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	T x D	H F GT	9
		(2 x 101)			
SOLIDIFIED INORGANICS	AL W005	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	10 10a
		(2 x 106)			
SOLIDIFIED INORGANICS	AL W005	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED INORGANICS	AL W005	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	AL W005	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a 34
		(24 x 106)			
SOLIDIFIED INORGANICS	IN W146	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W146	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	IN W146	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	IN W157	ACIDS, ORGANIC x ALCOHOLS & GLYCOLS	M x T	H P	11 11a
		(3 x 4)			
SOLIDIFIED INORGANICS	IN W157	ACIDS, ORGANIC x CAUSTICS	M x D	H	00
		(3 x 10)			
SOLIDIFIED INORGANICS	IN W157	ACIDS, ORGANIC x FLUORIDES, INORANIC	M x D	GT	11d
		(3 x 15)			
SOLIDIFIED INORGANICS	IN W157	ACIDS, ORGANIC x METALS & METAL COMPOUNDS, TOXIC	M x T	S	12 12aa
		(3 x 24)			
SOLIDIFIED INORGANICS	IN W157	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
SOLIDIFIED INORGANICS	IN W157	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W157	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	IN W157	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	25
		(17 x 23)			
SOLIDIFIED INORGANICS	IN W157	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a 34
		(24 x 106)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	IN W166	CAUSTICS x HALOGENATED ORGANICS	D x T1	H	00
		(10 x 17)			
SOLIDIFIED INORGANICS	IN W166	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W166	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T1	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	IN W166	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T1 x D	H F	25
		(17 x 23)			
SOLIDIFIED INORGANICS	IN W166	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T1 x D	S	33a 34
		(24 x 106)			
SOLIDIFIED INORGANICS	IN W177	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS	T x D	H	00
		(1 x 10)			
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x ETHERS	T x D	H	0aaa
		(1 x 14)			
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC	T x D	GT	0aaaa
		(1 x 15)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T x D	GF H F	1
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T x D	H G	3
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T x D	H	3b
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9
SOLIDIFIED INORGANICS	IN W179	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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SOLIDIFIED INORGANICS	IN W179	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	IN W179	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T x D	GT	11d
SOLIDIFIED INORGANICS	IN W179	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
SOLIDIFIED INORGANICS	IN W179	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W179	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	IN W179	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SOLIDIFIED INORGANICS	IN W179	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	IN W179	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	19
SOLIDIFIED INORGANICS	IN W179	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9
SOLIDIFIED INORGANICS	IN W181	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10 10a
SOLIDIFIED INORGANICS	IN W181	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W181	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SOLIDIFIED INORGANICS	IN W181	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W181	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	IN W181	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9
SOLIDIFIED INORGANICS	IN W188	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10
SOLIDIFIED INORGANICS	IN W188	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W188	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W188	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	IN W188	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	25
		(17 x 23)			
SOLIDIFIED INORGANICS	IN W188	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a 34
		(24 x 106)			
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x CAUSTICS	T x D	H	00
		(2 x 10)			
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x ETHERS	T x D	H F	3f
		(2 x 14)			
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC	T x D	GT	3g
		(2 x 15)			
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	GF H F	4
		(2 x 23)			
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	T x D	H F GT	9
		(2 x 101)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W216	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	10
		(2 x 106)			
SOLIDIFIED INORGANICS	IN W216	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
SOLIDIFIED INORGANICS	IN W216	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
SOLIDIFIED INORGANICS	IN W216	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	IN W216	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T x D	H F	25
		(17 x 23)			
SOLIDIFIED INORGANICS	IN W216	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a 34
		(24 x 106)			
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x CAUSTICS	T x D	H	00
		(2 x 10)			
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x ETHERS	T x D	H F	3f
		(2 x 14)			
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC	T x D	GT	3g
		(2 x 15)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9
SOLIDIFIED INORGANICS	IN W220	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10
SOLIDIFIED INORGANICS	IN W220	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W220	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15
SOLIDIFIED INORGANICS	IN W220	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	IN W220	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES (10 x 32)	D x T3	H E	00
SOLIDIFIED INORGANICS	IN W220	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	IN W220	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a 34

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W221	ACIDS, ORGANIC x ALCOHOLS & GLYCOLS (3 x 4)	M x T1	H P	11
SOLIDIFIED INORGANICS	IN W221	ACIDS, ORGANIC x CAUSTICS (3 x 10)	M x D	H	00
SOLIDIFIED INORGANICS	IN W221	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	M x D	GT	11d
SOLIDIFIED INORGANICS	IN W221	ACIDS, ORGANIC x METALS & METAL COMPOUNDS, TOXIC (3 x 24)	M x T	S	12
SOLIDIFIED INORGANICS	IN W221	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W221	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	IN W221	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	IN W221	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	IN W221	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES (10 x 32)	D x T	H E	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W221	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	IN W221	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
SOLIDIFIED INORGANICS	IN W222	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
SOLIDIFIED INORGANICS	IN W222	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W222	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	IN W222	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	IN W222	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	IN W222	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	IN W222	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	4
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	9
SOLIDIFIED INORGANICS	IN W228	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T x D	H	10
SOLIDIFIED INORGANICS	IN W228	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	IN W228	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SOLIDIFIED INORGANICS	IN W228	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	IN W228	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	IN W228	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a
SOLIDIFIED INORGANICS	IN W332	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	IN W347	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SOLIDIFIED INORGANICS	LA W002	CAUSTICS x KETONES (10 x 19)	D x T3	H	00
SOLIDIFIED INORGANICS	LA W002	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T2	S	00
SOLIDIFIED INORGANICS	LA W002	CAUSTICS x EXPLOSIVES (10 x 102)	D x T2	H E	00
SOLIDIFIED INORGANICS	LA W002	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x T2	EXTREMELY	00
SOLIDIFIED INORGANICS	LA W002	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T2	H F	17a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LA W002	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x T2	EXTREMELY	17b
SOLIDIFIED INORGANICS	LA W002	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x T2	EXTREMELY	18
SOLIDIFIED INORGANICS	LA W002	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T2 x D	S	33a 34
SOLIDIFIED INORGANICS	LA W003	CAUSTICS x KETONES (10 x 19)	D x T3	H	00
SOLIDIFIED INORGANICS	LA W003	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T3	S	00
SOLIDIFIED INORGANICS	LA W003	CAUSTICS x EXPLOSIVES (10 x 102)	D x T2	H E	00
SOLIDIFIED INORGANICS	LA W003	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x T2	EXTREMELY	00
SOLIDIFIED INORGANICS	LA W003	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T2	H F	17a
SOLIDIFIED INORGANICS	LA W003	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x T2	EXTREMELY	17b

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LA W003	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x T2	EXTREMELY	18
SOLIDIFIED INORGANICS	LA W003	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T3 x D	S	33 33a
SOLIDIFIED INORGANICS	LA W003	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T2	H E	36d
SOLIDIFIED INORGANICS	LA W003	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T2	H F G	37
SOLIDIFIED INORGANICS	LA W003	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x T2	EXTREMELY	39
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	T2 x D	H	0aaa
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	T2 x D	GT	0aaaa
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T2 x D	GF H F	1
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T2 x D	H G	3

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x OXIDIZING AGENTS, STRONG (1 x 104)	T2 x D	H GT	3aa
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T2 x D	H	3b
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T2 x D	H	
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T2 x D	H F	3f
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T2 x D	GT	3g
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T2 x D	GF H F	4
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T2 x D	H F GT	9
SOLIDIFIED INORGANICS	LA W006	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	T2 x D	H	10
SOLIDIFIED INORGANICS	LA W006	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T2 x D	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LA W006	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T2 x D	GT	11d
SOLIDIFIED INORGANICS	LA W006	ACIDS, ORGANIC x OXIDIZING AGENTS, STRONG (3 x 104)	T2 x D	H GT	12bbb
SOLIDIFIED INORGANICS	LA W006	ALCOHOLS & GLYCOLS x OXIDIZING AGENTS, STRONG (4 x 104)	T2 x D	H F	12bb
SOLIDIFIED INORGANICS	LA W006	AMINES, ALIPHATIC & AROMATIC x OXIDIZING AGENTS, STRONG (7 x 104)	T2 x D	H F GT	12d
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T2	H	00
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS (10 x 21)	D x T	GF H	00
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	15 00
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T1	S	00
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T2	H E	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	LA W006	CAUSTICS x EXPLOSIVES (10 x 102)	D x T	H E	00
SOLIDIFIED INORGANICS	LA W006	CAUSTICS x WATER REACTIVE SUBSTANCES (10 x 107)	D x T1	EXTREMELY	00
SOLIDIFIED INORGANICS	LA W006	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x D	H F	17a
SOLIDIFIED INORGANICS	LA W006	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x T1	EXTREMELY	17b
SOLIDIFIED INORGANICS	LA W006	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x T1	EXTREMELY	18
SOLIDIFIED INORGANICS	LA W006	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T2 x D	H F	25
SOLIDIFIED INORGANICS	LA W006	HALOGENATED ORGANICS x OXIDIZING AGENTS, STRONG (17 x 104)	T2 x D	H GT	28
SOLIDIFIED INORGANICS	LA W006	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	T x D	H G F	28b
SOLIDIFIED INORGANICS	LA W006	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x OXIDIZING AGENTS, STRONG (21 x 104)	T x D	H F E	28c

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LA W006	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	T x D	GF H	28d
SOLIDIFIED INORGANICS	LA W006	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x D	H F	29
SOLIDIFIED INORGANICS	LA W006	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x WATER REACTIVE SUBSTANCES (23 x 107)	D x T1	EXTREMELY	31
SOLIDIFIED INORGANICS	LA W006	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T1 x D	S	33a 34
SOLIDIFIED INORGANICS	LA W006	NITRO COMPOUNDS x OXIDIZING AGENTS, STRONG (27 x 104)	T2 x D	H E	36b
SOLIDIFIED INORGANICS	LA W006	HYDROCARBON, ALIPHATIC, SATURATED x OXIDIZING AGENTS, STRONG (29 x 104)	T2 x D	H F	36c
SOLIDIFIED INORGANICS	LA W006	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T	H E	36d
SOLIDIFIED INORGANICS	LA W006	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x D	H F G	37
SOLIDIFIED INORGANICS	LA W006	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x T1	EXTREMELY	39

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	LA W006	EXPLOSIVES x OXIDIZING AGENTS, STRONG (102 x 104)	T x D	H E	40
SOLIDIFIED INORGANICS	LA W006	OXIDIZING AGENTS, STRONG x WATER REACTIVE SUBSTANCES (104 x 107)	D x T1	EXTREMELY	41
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x ALCOHOLS & GLYCOLS (1 x 4)	M x T	H	0a
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS (1 x 10)	M x D	H	0aa 00
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	M x D	H	0aaa
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	M x D	GT	0aaaa
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x HALOGENATED ORGANICS (1 x 17)	M x T	H GT	0b
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x KETONES (1 x 19)	M x T	H	0bb
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	M x D	GF H F	1

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x METALS & METAL COMPOUNDS, TOXIC (1 x 24)	M x T	S	2
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	M x D	H G	3
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x EXPLOSIVES (1 x 102)	M x T	H E	3a
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x OXIDIZING AGENTS, STRONG (1 x 104)	M x T	H GT	3aa
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	M x D	H	3b
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x ACIDS, ORGANIC (2 x 3)	M x T	G H	3c
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x ALCOHOLS & GLYCOLS (2 x 4)	M x T	H F	3d
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	M x D	H	3e 00
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	M x D	H F	3f

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	M x D	GT	3g
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x HALOGENATED ORGANICS (2 x 17)	M x T	H F GT	3h
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x KETONES (2 x 19)	M x T	H F	3i
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	M x D	GF H F	4
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x METALS & METAL COMPOUNDS, TOXIC (2 x 24)	M x T	S	6
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	M x D	H F GT	9
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x EXPLOSIVES (2 x 102)	M x T	H E	9a
SOLIDIFIED INORGANICS	LL W019	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	M x D	H	10 10a
SOLIDIFIED INORGANICS	LL W019	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T x D	H	11b 00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LL W019	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T x D	GT	11d
SOLIDIFIED INORGANICS	LL W019	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	13 00
SOLIDIFIED INORGANICS	LL W019	CAUSTICS x KETONES (10 x 19)	D x T	H	13a 00
SOLIDIFIED INORGANICS	LL W019	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	16a 00
SOLIDIFIED INORGANICS	LL W019	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	16a 00
SOLIDIFIED INORGANICS	LL W019	CAUSTICS x EXPLOSIVES (10 x 102)	D x T	H E	16c 00
SOLIDIFIED INORGANICS	LL W019	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T	H F	17a
SOLIDIFIED INORGANICS	LL W019	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	25
SOLIDIFIED INORGANICS	LL W019	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T	H F	29

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	LL W019	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
SOLIDIFIED INORGANICS	LL W019	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T	H E	36d
SOLIDIFIED INORGANICS	LL W019	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T	H F G	37
SOLIDIFIED INORGANICS	MD W002	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	OR W042	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	OR W042	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	OR W042	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a
SOLIDIFIED INORGANICS	OR W046	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	OR W046	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	OR W046	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	PA W014	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	PA W015	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	PA W015	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	PA W015	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
SOLIDIFIED INORGANICS	PAW015A	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF M001	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T1	H	00
SOLIDIFIED INORGANICS	RF M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T1	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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SOLIDIFIED INORGANICS	RF M001	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T1 x D	H F	19
SOLIDIFIED INORGANICS	RF M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T1 x D	S	33a
SOLIDIFIED INORGANICS	RF W010	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T1	H	00
SOLIDIFIED INORGANICS	RF W010	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W010	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	RF W010	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES (10 x 32)	D x T3	H E	00
SOLIDIFIED INORGANICS	RF W010	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T1 x D	H F	19
SOLIDIFIED INORGANICS	RF W010	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	RF W038	ACIDS, ORGANIC x CAUSTICS (3 x 10)	T x D	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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SOLIDIFIED INORGANICS	RF W038	ACIDS, ORGANIC x FLUORIDES, INORANIC (3 x 15)	T x D	GT	11d
SOLIDIFIED INORGANICS	RF W038	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	RF W038	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W038	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES (10 x 32)	D x T	H E	00
SOLIDIFIED INORGANICS	RF W040	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	RF W040	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	RF W040	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W040	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	RF W040	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	RF W040	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	26
SOLIDIFIED INORGANICS	RF W040	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	RF W059	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS (10 x 21)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W059	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W059	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	RF W059	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	D x D	H G F	28b
SOLIDIFIED INORGANICS	RF W059	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	D x D	GF H	28d
SOLIDIFIED INORGANICS	RF W059	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	RF W063	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	RF W063	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED INORGANICS	RF W063	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33 33a 34
		(24 x 106)			
SOLIDIFIED INORGANICS	RF W065	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS	D x D	GF H	00
		(10 x 21)			
SOLIDIFIED INORGANICS	RF W065	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED INORGANICS	RF W065	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	D x D	H G F	28b
		(21 x 101)			
SOLIDIFIED INORGANICS	RF W065	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER	D x D	GF H	28d
		(21 x 106)			
SOLIDIFIED INORGANICS	RF W068	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
SOLIDIFIED INORGANICS	RF W068	CAUSTICS x KETONES	D x T	H	00
		(10 x 19)			
SOLIDIFIED INORGANICS	RF W068	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	RF W068	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	RF W068	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
SOLIDIFIED INORGANICS	RF W068	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	19
SOLIDIFIED INORGANICS	RF W068	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a 34
SOLIDIFIED INORGANICS	RF W076	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	RF W076	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	RF W076	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RF W076	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	RF W076	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	RF W076	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	19
SOLIDIFIED INORGANICS	RF W076	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33 33a
SOLIDIFIED INORGANICS	RL M005	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RL M005	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x M	S	00
SOLIDIFIED INORGANICS	RL M005	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	M x D	S	33a 34
SOLIDIFIED INORGANICS	RL M032	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
SOLIDIFIED INORGANICS	RL M032	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	RL M032	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	RL M032	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED INORGANICS	RL M032	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED INORGANICS	SR W053	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED INORGANICS	SR W053	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED INORGANICS	SR W053	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED INORGANICS	SR W053	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED INORGANICS	SR W053	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
SOLIDIFIED INORGANICS	SR W053	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	19
SOLIDIFIED INORGANICS	SR W053	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED ORGANICS	IN W167	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x D	H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED ORGANICS	IN W167	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
SOLIDIFIED ORGANICS	IN W167	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
SOLIDIFIED ORGANICS	IN W167	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	H F	23
		(17 x 23)			
SOLIDIFIED ORGANICS	IN W167	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	T x D	S	33a
		(24 x 106)			
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x CAUSTICS	D x D	H	00
		(2 x 10)			
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x ETHERS	D x D	H F	3f
		(2 x 14)			
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC	D x D	GT	3g
		(2 x 15)			
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H F	4
		(2 x 23)			
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC	D x D	H F GT	9
		(2 x 101)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED ORGANICS	IN W174	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER (2 x 106)	D x D	H	10a
SOLIDIFIED ORGANICS	IN W174	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED ORGANICS	IN W309	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x D	H	00
SOLIDIFIED ORGANICS	IN W309	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED ORGANICS	IN W309	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
SOLIDIFIED ORGANICS	IN W309	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	D x D	H F	23
SOLIDIFIED ORGANICS	IN W309	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
SOLIDIFIED ORGANICS	RF W013	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x D	H	00
SOLIDIFIED ORGANICS	RF W013	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
SOLIDIFIED ORGANICS	RF W013	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	D x D	H F	25
SOLIDIFIED ORGANICS	RF W069	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
SOLIDIFIED ORGANICS	RF W069	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED ORGANICS	RF W069	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED ORGANICS	RF W069	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
SOLIDIFIED ORGANICS	RF W069	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	23 26
SOLIDIFIED ORGANICS	RL M017	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
SOLIDIFIED ORGANICS	RL M017	CAUSTICS x KETONES (10 x 19)	D x T	H	00
SOLIDIFIED ORGANICS	RL M017	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SOLIDIFIED ORGANICS	RL M018	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED ORGANICS	RL M024	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
SOLIDIFIED ORGANICS	SR W006	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	AW W018	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS (10 x 21)	D x D	GF H	00
UNCATEGORIZED METAL	AW W018	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	AW W018	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	D x D	H G F	28b
UNCATEGORIZED METAL	AW W018	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	D x D	GF H	28d
UNCATEGORIZED METAL	AW W019	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS (10 x 21)	D x D	GF H	00
UNCATEGORIZED METAL	AW W019	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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UNCATEGORIZED METAL	AW W019	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	D x D	H G F	28b
UNCATEGORIZED METAL	AW W019	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	D x D	GF H	28d
UNCATEGORIZED METAL	AW W021	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	AW W021	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	AW W021	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	IN M003	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	IN W280	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	IN W280	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	IN W280	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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UNCATEGORIZED METAL	IN W287	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
UNCATEGORIZED METAL	IN W287	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x M	S	00
		(10 x 24)			
UNCATEGORIZED METAL	IN W287	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	M x D	S	33a
		(24 x 106)			
UNCATEGORIZED METAL	IN W294	AMINES, ALIPHATIC & AROMATIC x HALOGENATED ORGANICS	D x D	H G	12b
		(7 x 17)			
UNCATEGORIZED METAL	IN W294	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC	D x D	S	12c
		(7 x 24)			
UNCATEGORIZED METAL	IN W294	CAUSTICS x HALOGENATED ORGANICS	D x D	H	00
		(10 x 17)			
UNCATEGORIZED METAL	IN W294	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
UNCATEGORIZED METAL	IN W294	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
UNCATEGORIZED METAL	IN W294	CAUSTICS x NITRO COMPOUNDS	D x D	H E	00
		(10 x 27)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	IN W294	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	D x D	H F	24
UNCATEGORIZED METAL	IN W294	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
UNCATEGORIZED METAL	IN W296	AMINES, ALIPHATIC & AROMATIC x METALS & METAL COMPOUNDS, TOXIC (7 x 24)	T x D	S	12c
UNCATEGORIZED METAL	IN W296	CAUSTICS x ESTERS (10 x 13)	D x T	H	00
UNCATEGORIZED METAL	IN W296	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
UNCATEGORIZED METAL	IN W296	CAUSTICS x KETONES (10 x 19)	D x T	H	00
UNCATEGORIZED METAL	IN W296	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	IN W296	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
UNCATEGORIZED METAL	IN W296	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	IN W296	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
UNCATEGORIZED METAL	IN W296	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
UNCATEGORIZED METAL	IN W298	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
UNCATEGORIZED METAL	IN W298	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	IN W298	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
UNCATEGORIZED METAL	IN W298	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	24
UNCATEGORIZED METAL	IN W298	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
UNCATEGORIZED METAL	IN W300	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T1	H	00
UNCATEGORIZED METAL	IN W300	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	IN W300	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
UNCATEGORIZED METAL	IN W300	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	T1 x D	H F	24
		(17 x 23)			
UNCATEGORIZED METAL	IN W300	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			
UNCATEGORIZED METAL	IN W322	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
UNCATEGORIZED METAL	INW260A	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
UNCATEGORIZED METAL	LA W001	ALDEHYDES x CAUSTICS	T2 x D	H	00
		(5 x 10)			
UNCATEGORIZED METAL	LA W001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	00
		(10 x 23)			
UNCATEGORIZED METAL	LA W001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x D	S	00
		(10 x 24)			
UNCATEGORIZED METAL	LA W001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER	D x D	S	33a
		(24 x 106)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	T2 x D	H	0aaa
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	T2 x D	GT	0aaaa
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T2 x D	GF H F	1
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T2 x D	H G	3
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T2 x D	H	3b
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T2 x D	H F	3f
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T2 x D	GT	3g
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T2 x D	GF H F	5
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T2 x D	H F GT	8

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LA W005	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T2 x D	H	10a
		(2 x 106)			
UNCATEGORIZED METAL	LA W005	ACIDS, ORGANIC x CAUSTICS	T2 x D	H	00
		(3 x 10)			
UNCATEGORIZED METAL	LA W005	ACIDS, ORGANIC x FLUORIDES, INORANIC	T2 x D	GT	11d
		(3 x 15)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x HALOGENATED ORGANICS	D x T2	H	00
		(10 x 17)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x KETONES	D x T2	H	00
		(10 x 19)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15
		(10 x 23)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x ORHANOPHOSPHATES, PHOSPHOTHIOATES & PHOSPHODITHIOATES	D x T2	H E	00
		(10 x 32)			
UNCATEGORIZED METAL	LA W005	CAUSTICS x WATER REACTIVE SUBSTANCES	D x T2	EXTREMELY	00
		(10 x 107)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LA W005	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T2	H F	17a
UNCATEGORIZED METAL	LA W005	ETHERS x WATER REACTIVE SUBSTANCES (14 x 107)	D x T2	EXTREMELY	17b
UNCATEGORIZED METAL	LA W005	FLUORIDES, INORANIC x WATER REACTIVE SUBSTANCES (15 x 107)	D x T2	EXTREMELY	18
UNCATEGORIZED METAL	LA W005	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T2 x D	H F	24
UNCATEGORIZED METAL	LA W005	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T2	H F	30
UNCATEGORIZED METAL	LA W005	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x WATER REACTIVE SUBSTANCES (23 x 107)	D x T2	EXTREMELY	32
UNCATEGORIZED METAL	LA W005	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	LA W005	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T2	H F G	38
UNCATEGORIZED METAL	LA W005	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x WATER REACTIVE SUBSTANCES (101 x 107)	D x T2	EXTREMELY	39

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LA W009	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T	H	00
UNCATEGORIZED METAL	LA W009	CAUSTICS x KETONES (10 x 19)	D x T	H	00
UNCATEGORIZED METAL	LA W009	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	LA W009	CAUSTICS x NITRO COMPOUNDS (10 x 27)	D x T	H E	00
UNCATEGORIZED METAL	LA W009	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	20
UNCATEGORIZED METAL	LA WR01	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	LA WR05	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x CAUSTICS (1 x 10)	T x D	H	00
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x ETHERS (1 x 14)	T x D	H	0aaaa

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x FLUORIDES, INORANIC (1 x 15)	T x D	GT	0aaa
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (1 x 23)	T x D	GF H F	1
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (1 x 101)	T x D	H G	3
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, NON-OXIDIZING x WATER & MIXTURES CONTAINING WATER (1 x 106)	T x D	H	3b
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x CAUSTICS (2 x 10)	T x D	H	00
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x ETHERS (2 x 14)	T x D	H F	3f
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x FLUORIDES, INORANIC (2 x 15)	T x D	GT	3g
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (2 x 23)	T x D	GF H F	5
UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (2 x 101)	T x D	H F GT	8

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

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UNCATEGORIZED METAL	LL W018	ACIDS, MINERAL, OXIDIZING x WATER & MIXTURES CONTAINING WATER	T x D	H	10a
		(2 x 106)			
UNCATEGORIZED METAL	LL W018	ACIDS, ORGANIC x CAUSTICS	T x D	H	00
		(3 x 10)			
UNCATEGORIZED METAL	LL W018	ACIDS, ORGANIC x FLUORIDES, INORANIC	T x D	GT	11d
		(3 x 15)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x HALOGENATED ORGANICS	D x T	H	00
		(10 x 17)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x KETONES	D x T	H	00
		(10 x 19)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS	D x T	GF H	00
		(10 x 21)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES	D x T	GF H	00
		(10 x 22)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC	D x D	GF H	15 00
		(10 x 23)			
UNCATEGORIZED METAL	LL W018	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC	D x T	S	00
		(10 x 24)			

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LL W018	CAUSTICS x EXPLOSIVES (10 x 102)	D x T	H E	00
UNCATEGORIZED METAL	LL W018	ETHERS x OXIDIZING AGENTS, STRONG (14 x 104)	D x T	H F	17a
UNCATEGORIZED METAL	LL W018	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T x D	H F	22
UNCATEGORIZED METAL	LL W018	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x COMBUSTIBLE & FLAMMABLE MATERIALS, MISC (21 x 101)	T x D	H G F	28b
UNCATEGORIZED METAL	LL W018	METALS, ALKALI & ALKALINE EARTH, ELEMENTAL & ALLOYS x WATER & MIXTURES CONTAINING WATER (21 x 106)	T x D	GF H	28d
UNCATEGORIZED METAL	LL W018	METALS OTHER ELEMENTAL & ALLOYS IN THE FORM OF POWDERS, VAPORS OR SPONGES x WATER & MIXTURES CONTAINING WATER (22 x 106)	T x D	GF H	28e
UNCATEGORIZED METAL	LL W018	METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC x OXIDIZING AGENTS, STRONG (23 x 104)	D x T	H F	30
UNCATEGORIZED METAL	LL W018	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	LL W018	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x EXPLOSIVES (101 x 102)	D x T	H E	36d

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
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WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	LL W018	COMBUSTIBLE & FLAMMABLE MATERIALS, MISC x OXIDIZING AGENTS, STRONG (101 x 104)	D x T	H F G	38
UNCATEGORIZED METAL	RF W011	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T1	H	00
UNCATEGORIZED METAL	RF W011	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RF W011	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00
UNCATEGORIZED METAL	RF W011	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T1 x D	H F	21
UNCATEGORIZED METAL	RF W011	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
UNCATEGORIZED METAL	RF W037	CAUSTICS x HALOGENATED ORGANICS (10 x 17)	D x T1	H	00
UNCATEGORIZED METAL	RF W037	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RF W037	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x D	S	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	RF W037	HALOGENATED ORGANICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (17 x 23)	T1 x D	H F	24
UNCATEGORIZED METAL	RF W037	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	D x D	S	33a
UNCATEGORIZED METAL	RL M001	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RL M001	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	RL M001	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	RL M002	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RL M002	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	RL M002	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	RL M003	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

TABLE C1-1
SUMMARY OF POTENTIAL INCOMPATIBILITIES FOR WASTE FORMS AND CONTAINER

WASTE MATRIX CODE GROUP	WASTE STREAM UNIQUE ID	POTENTIAL CHEMICAL COMPATIBILITY REACTION	CONCENTRATION OF REACTANTS(a)	REACTION CODE(b)	EXPLANATION CODE NUMBER(c)
UNCATEGORIZED METAL	RL M008	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RL M008	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	RL M008	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a
UNCATEGORIZED METAL	RL M021	CAUSTICS x METALS, OTHER ELEMENTAL, & ALLOY, AS SHEETS, RODS, MOLDINGS, DROPS, ETC (10 x 23)	D x D	GF H	00
UNCATEGORIZED METAL	RL M021	CAUSTICS x METALS & METAL COMPOUNDS, TOXIC (10 x 24)	D x T	S	00
UNCATEGORIZED METAL	RL M021	METALS & METAL COMPOUNDS, TOXIC x WATER & MIXTURES CONTAINING WATER (24 x 106)	T x D	S	33a

x=Combined with

(a) Concentration of reactants: T=Trace (<1% by wt.); T1=Trace (<0.1% by wt.); T2=Trace (low ppm range); T3=Trace (<1 ppm range); M=Minor (1-10% by wt.); D=Dominant (>10% by wt.)

(b)Reaction code: H=heat generation; S= solubilization of toxic substances; F=fire; GF= flammable gas generation; G= nonflammable gas generation GT=toxic gas generation; P=violent polymerization; E=explosive

(c) See text

APPENDIX C2

DATA ACCUMULATED FROM HEADSPACE-GAS ANALYSES

APPENDIX C2

DATA ACCUMULATED FROM HEADSPACE GAS ANALYSES

This appendix presents all available headspace waste characterization data. The data include drum headspace analytical results for approximately 900 drums of transuranic mixed waste from Idaho National Engineering Laboratory (INEL) and Rocky Flats Environmental Technology Site (RFETS). The waste characterization data cut-off date was September 29, 1995. Item Description Code, and Transuranic Package Transporter Content (TRUCON) Code column entries correspond to Waste Matrix Code groups as described in Chapter C, Table C-1.

To reflect expected proportions of different waste types, the data were weighted according to Waste Matrix Code Group volumes reported in the *Waste Isolation Pilot Plant Transuranic Waste Baseline Inventory Report* (BIR). Table C2-1 presents the weighted average headspace concentrations. The Waste Matrix Code Group (WMCG) volumes and the weighting factors used to calculate the average concentrations are presented in Table C2-2.

Before the data could be manipulated, the RFETS database structure was converted into a modified INEL database structure, and the data from the two sites were combined into a single database. The weighted averages were calculated using computer codes developed for this effort that were validated and verified through independent review of the codes and associated documentation.

The database was modified as follows before the weighted averages were calculated:

- TRUCON codes assigned to each waste drum were converted to a Waste Stream ID using the cross-correlation table in the BIR (DOE 1995a, app. F).

- The Waste Profile Forms from the BIR (DOE 1995a, vol. II) were used to determine the WMCG for each waste stream.

- If the data qualifier was "U," then one-half of the associated value, the sample quantitation limit (SQL) was used for the concentration in calculating the weighted average.

- If the qualifier was "E" or "JE" and a dilution analysis was available for that sample number, the dilution analysis was used for all analytes. Analytes in the diluted sample, qualified as "U," were treated as above.

- All "J"-qualified (estimated) data were used.

- All "B"-qualified (constituent found in blanks) data were used. This was a conservative treatment of the data in the absence of information on the level of contamination observed in the blank.

All WMCGs, with the exception of soils and unknown waste, were represented by the data from the INEL and RFETS. Since the soils and unknown waste groups comprise a small percentage of the entire inventory (0.74 and 0.97 percent, respectively), their contribution to the calculated average concentrations was assumed to be insignificant. The weighted averages were calculated by:

$$\bar{x} = \sum_{i=1}^{t} w_i \bar{x}_i \qquad \text{(C2-1)}$$

where,

$\bar{x}$ = weighted average
$\bar{x}_i$ = average for WMCG i
w_i = weighting factor for WMCG i
t = number of WMCGs,

and $\bar{x}_i$ was calculated by:

$$\bar{x}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} x_{ij} \qquad \text{(C2-2)}$$

where,

n_i = number of samples in WMCG i
x_{ij} = analysis j for WMCG i.

For several volatile organic compounds (VOC) (carbon disulfide, isobutanol, 1,1,2-trichloroethane, trichlorofluoromethane, and vinyl chloride), headspace sampling data were not available. The headspace concentrations of these VOCs for screening purposes and for calculation of migration concentrations were assumed to be equal to one-half of the SQL. The SQLs for these VOCs were calculated from information on the required method detection limits (8 nanograms per 10-milliliter sample) contained in the *Transuranic Waste Characterization Quality Assurance Program Plan Transuranic Waste Characterization Program Sampling and Analysis Methods Manual:*

The SQL is the Method Detection Limit (MDL) expressed in part(s) per million per volume (ppmv).

$$SQL = \frac{R \times T}{P \times MW} \times MDL \times (10^6\ ppmv/mole\text{-}fraction) \qquad \text{(C2-3)}$$

where,

SQL = sample quantitation limit for the VOC, ppmv
R = Ideal Gas Constant, 0.082 L•atm/mol•K
T = temperature, 298 K
P = pressure, 1 atm
MW = molecular weight of VOC, g/mole
MDL = method detection limit of VOC, g/L

The minimum, maximum, and median concentrations for each compound are shown in Table C2-3, separated by the waste matrix code. These values show that the distribution of data is not normal and, therefore, using the weighted average headspace concentrations in calculations is a conservative approach.

Table C2-4 contains the headspace gas data by drum number.

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REFERENCE

DOE (U.S. Department of Energy). 1995a. *Waste Isolation Pilot Plant Transuranic Waste Baseline Inventory Report*. DOE/CAO-94-1005, Rev. 1. U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM.

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BIBLIOGRAPHY

DOE (U.S. Department of Energy). 1995a. *Waste Isolation Pilot Plant Transuranic Waste Baseline Inventory Report*. DOE/CAO-94-1005, Rev. 1. U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM.

DOE (U.S. Department of Energy). 1995b. *Transuranic Waste Characterization Quality Assurance Program Plan*. Rev. 0. U.S. Department of Energy, Carlsbad Area Office, Waste Isolation Pilot Plant, Carlsbad, NM.

DOE (U.S. Department of Energy). 1995c. *Transuranic Waste Characterization Sampling and Analysis Methods Manual*. Rev. 0. U.S. Department of Energy, Carlsbad Area Office, Waste Isolation Pilot Plant, Carlsbad, NM.

TABLE C2-1
WEIGHTED AVERAGE CONCENTRATIONS OF HEADSPACE GASES

Constituent	Weighted Average (ppmv)
1,1,1-Trichloroethane	3.17E+02
1,1,2,2-Tetrachloroethane	9.35E+00
1,1,2-Trichloro-1,2,2-trifluoroethane	3.30E+01
1,1-Dichloroethane	1.02E+01
1,1-Dichloroethylene	1.15E+01
1,2,4-Trimethylbenzene	1.22E+01
1,2-Dichloroethane	9.07E+00
1,3,5-Trimethylbenzene	8.62E+00
Butanol	7.81E+01
Methyl ethyl ketone	6.37E+01
Methyl isobutyl ketone	7.90E+01
Acetone	7.98E+01
Benzene	9.25E+00
Bromoform	9.38E+00
Carbon tetrachloride	3.76E+02
Chlorobenzene	1.25E+01
Chloroform	2.53E+01
(cis)-1,2-Dichloroethylene	8.97E+00
Cyclohexane	2.75E+01
Ethyl benzene	1.16E+01
Ethyl ether	1.33E+01
Methanol	2.13E+02
Methylene chloride	3.68E+02
o-Xylene	1.60E+01
p/m-Xylene	1.93E+01
Tetrachloroethylene	9.40E+00
Toluene	1.94E+01
Trichloroethylene	2.51E+01

Table C2-2
TRU Waste Disposal Inventory and Weighting Factors for Weighted Average Calculation

Waste Matrix Code Groups	Stored Volumes (cubic meters)	Projected Volumes (cubic meters)	Scaled Volumes (cubic meters)	Weighting Factor
Contact-Handled Waste				
Combustible	7.10E+03	2.70E+04	6.20E+04	3.53E-01
Filter	4.30E+02	1.10E+03	2.60E+03	1.48E-02
Graphite	6.70E+02	4.30E+01	7.60E+02	4.30E-03
Heterogeneous	3.00E+04	4.60E+03	3.90E+04	2.22E-01
Inorganic non-metal	1.20E+03	3.20E+02	1.80E+03	1.02E-02
Lead/cadmium metal	5.60E+01	1.30E+02	3.10E+02	1.80E-03
Salt waste	3.30E+01	6.00E+01	1.50E+02	8.52E-04
Soils	3.70E+02	4.50E+02	1.30E+03	7.39E-03
Solidified inorganics	1.70E+04	8.00E+03	3.40E+04	1.94E-01
Solidified organics	1.50E+03	3.00E+02	2.10E+03	1.20E-02
Uncategorized metal	1.20E+04	8.60E+03	3.00E+04	1.71E-01
Unknown	1.70E+03	0.00E+00	1.70E+03	9.66E-03
TOTAL	7.21E+04	5.06E+04	1.76E+05	1.00
Remote-Handled Waste				
Combustible	1.50E+01	3.20E+00	2.00E+01	2.80E-03
Filter	8.90E-01	2.10E+00	4.30E+01	6.02E-03
Heterogeneous	4.40E+02	3.30E+03	5.90E+03	8.26E-01
Inorganic non-metal				
Lead/cadmium metal	0.00E+00	6.00E+00	9.80E+00	1.37E-03
Salt waste	0.00E+00	2.80E+00	4.60E+00	6.44E-04
Solidified inorganic	6.10E+02	1.70E+02	9.00E+02	1.26E-01
Uncategorized metal	8.80E+01	8.60E+01	2.30E+02	3.22E-02
Unknown	1.10E+01	2.40E+01	3.50E+01	4.90E-03
TOTAL	1.16E+03	3.59E+03	7.14E+03	1.00

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups

Waste Matrix Code Group	Value	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1-Dichloroethene	Acetone	Methylene Chloride	1,1-Dichloroethane	(cis)-1,2-Dichloroethene
Combustible	Minimum	5.00	0.02	0.03	0.02	3.60	0.15	0.02	0.01
	Maximum	360.00	110.00	180.00	120.00	59.00	270.00	130.00	93.00
	Median	17.00	0.44	0.50	0.52	17.00	2.70	0.37	0.30
Filter	Minimum	1.30	0.02	0.03	0.02	0.56	0.02	0.04	0.02
	Maximum	245.44	1.60	3.08	5.20	844.03	2.22	2.00	0.76
	Median	17.00	0.20	0.22	0.26	17.00	0.40	0.21	0.16
Graphite	Minimum	5.00	0.01	0.03	0.02	5.00	0.02	0.01	0.01
	Maximum	610.00	2.60	1.60	2.40	51.00	23.00	35.00	1.20
	Median	17.00	0.02	0.04	0.02	17.00	0.07	0.03	0.02
Heterogeneous	Minimum	1.30	0.03	0.06	0.10	0.50	0.10	0.02	0.02
	Maximum	4750.00	384.00	798.33	880.24	3000.00	29668.00	250.00	250.00
	Median	16.26	0.40	0.40	0.40	9.60	0.54	0.40	0.30
Inorganic non-metal	Minimum	1.96	0.01	0.04	0.02	2.40	0.03	0.02	0.01
	Maximum	147.84	3.80	2.40	44.00	62.00	56.00	52.00	2.10
	Median	17.00	0.18	0.14	0.17	17.00	0.56	0.26	0.09
Lead/cadmium metal waste	Minimum	1.30	0.20	0.10	0.10	3.15	0.10	0.10	0.06
	Maximum	1710.00	90.00	90.00	113.67	1080.00	90.00	90.00	90.00
	Median	8.47	0.47	0.28	0.24	23.83	5.80	0.75	0.24

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1-Dichloroethene	Acetone	Methylene Chloride	1,1-Dichloroethane	(cis)-1,2-Dichloroethene
Salt waste	Minimum	5.00	0.02	0.04	0.02	5.00	0.05	0.01	0.01
	Maximum	17.00	1.00	6.70	1.00	37.00	3.30	2.20	0.47
	Median	5.00	0.06	0.06	0.07	5.00	0.25	0.05	0.03
Soils	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-
Solidified Inorganics	Minimum	1.30	0.01	0.01	0.02	0.00	0.02	0.01	0.01
	Maximum	4900.00	500.00	12000.00	460.00	130.00	440.00	380.00	230.00
	Median	6.06	0.20	0.46	0.26	5.00	0.36	0.21	0.13
Solidified Organics	Minimum	1.90	0.06	0.05	0.05	1.20	0.08	0.02	0.03
	Maximum	82991.00	4367.90	20000.00	4367.9	52415.00	8080.9	4367.90	4367.90
	Median	17.00	2.08	1.85	5.00	17.00	3.38	1.00	1.00
Uncategorized metal	Minimum	2.70	0.01	0.02	0.02	0.50	0.02	0.01	0.01
	Maximum	30221.00	2400.00	1200.00	1200.00	6000.00	179752.0	1200.00	1200.00
	Median	17.00	0.39	0.30	0.32	17.00	0.78	0.24	0.24
Unknown	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	2-Butanone	Chloroform	1,1,1-Trichlroroethane	Cyclohexane	Carbon Tetrachloride	Benzene	1,2-Dichloroethane	1-Butanol
Combustible	Minimum	1.00	0.06	0.05	0.02	0.02	0.04	0.02	1.20
	Maximum	18.00	1100.00	920.00	740.00	25000.00	78.00	110.00	18.00
	Median	17.00	2.80	48.00	0.45	0.83	0.42	0.42	17.00
Filter	Minimum	0.50	0.01	0.03	0.02	0.02	0.01	0.02	0.50
	Maximum	17.00	0.82	120.00	2.69	36.00	6.90	1.50	17.00
	Median	5.58	0.26	0.50	0.27	0.22	0.26	0.21	6.00
Graphite	Minimum	5.00	0.01	0.02	0.01	0.02	0.01	0.01	5.00
	Maximum	17.00	1.60	250.00	0.19	1.20	1.50	1.20	17.00
	Median	17.00	0.02	0.10	0.02	0.06	0.02	0.02	17.00
Heterogeneous	Minimum	0.50	0.04	0.10	0.03	0.09	0.06	0.03	0.50
	Maximum	2250.00	2074.30	14569.00	1922.1	6912.50	250.00	250.00	2304.0
	Median	4.50	0.40	0.67	1.18	0.55	0.50	0.37	3.85
Inorganic non-metal	Minimum	0.60	0.01	0.09	0.02	0.07	0.01	0.01	0.87
	Maximum	17.00	22.00	320.00	110.00	83.00	2.20	1.70	17.00
	Median	17.00	0.30	9.80	0.14	0.33	0.19	0.10	17.00
Lead/cadmium metal waste	Minimum	0.50	0.10	0.10	0.10	0.10	0.10	0.10	1.10
	Maximum	810.00	90.00	5612.30	90.00	2006.3	90.00	90.00	450.00
	Median	4.67	1.70	0.32	0.29	2.62	2.35	0.86	4.30

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	2-Butanone	Chloroform	1,1,1-Trichlroroethane	Cyclohexane	Carbon Tetrachloride	Benzene	1,2-Dichloroethane	1-Butanol
Salt Waste	Minimum	5.00	0.01	0.10	0.01	0.07	0.01	0.01	5.00
	Maximum	17.00	2.30	23.00	0.72	50.00	0.58	0.46	17.00
	Median	5.00	0.06	0.39	0.10	0.16	0.09	0.03	5.00
Soils	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-
Solidified inorganic	Minimum	0.50	0.01	0.04	0.01	0.01	0.01	0.01	0.50
	Maximum	130.00	250.00	21000.00	1700.00	43000.00	290.00	230.00	132.00
	Median	5.00	0.13	4.70	0.29	0.28	0.24	0.13	5.00
Solidified organic	Minimum	0.50	0.04	0.12	0.04	0.07	0.10	0.03	0.50
	Maximum	39311.00	6023.40	85795.00	4367.9	88979.00	4367.90	4367.9	32467.00
	Median	17.00	1.35	81.50	1.75	1.60	3.00	0.99	17.00
Uncategorized metal	Minimum	0.50	0.01	0.05	0.01	0.02	0.01	0.01	0.50
	Maximum	6000.00	1200.0	5400.00	1200.00	1200.00	1200.00	1200.00	14400.00
	Median	17.00	0.32	12.50	0.31	0.39	0.37	0.24	17.00
Unknown	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	Trichlororo ethylene	Methyl isobutyl ketone	Toluene	Tetrachloro ethene	Chlorobenzene	Ethyl benzene	m,p-Xylene	o-Xylene
Combustible	Minimum	0.02	1.10	0.18	0.01	0.02	0.02	0.05	0.02
	Maximum	340.00	18.00	130.00	110.00	120.00	130.00	150.00	130.0
	Median	0.61	17.00	4.00	0.33	0.34	0.38	0.55	0.46
Filter	Minimum	0.02	0.10	0.03	0.02	0.02	0.02	0.02	0.02
	Maximum	260.00	17.00	53.00	2.80	1.20	1.00	1.40	1.00
	Median	0.40	4.59	2.77	0.30	0.20	0.20	0.24	0.21
Graphite	Minimum	0.01	5.00	0.02	0.01	0.01	0.01	0.01	0.01
	Maximum	3.00	51.00	9.40	1.10	1.40	2.30	7.60	2.50
	Median	0.02	17.00	0.07	0.02	0.02	0.02	0.02	0.02
Heterogeneous	Minimum	0.03	0.60	0.13	0.03	0.03	0.03	0.05	0.03
	Maximum	1600.00	2750.00	574.53	250.00	384.00	1996.80	8500.1	2764.00
	Median	0.40	4.40	13.98	0.30	0.40	0.40	0.46	0.60
Inorganic non-metal	Minimum	0.01	1.10	0.06	0.01	0.01	0.01	0.01	0.01
	Maximum	390.00	18.00	45.00	14.00	2.00	2.10	5.10	2.30
	Median	0.24	17.00	2.10	0.09	0.10	0.12	0.13	0.13
Lead/cadmium metal waste	Minimum	0.05	0.60	0.22	0.05	0.06	0.06	0.10	0.10
	Maximum	90.00	990.00	90.00	90.00	90.00	90.00	90.00	180.00
	Median	0.24	2.79	5.62	0.24	0.47	0.29	0.54	0.91

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	Trichlororo ethylene	Methyl isobutyl ketone	Toluene	Tetrachloro ethene	Chlorobenzene	Ethyl benzene	m,p-Xylene	o-Xylene
Salt waste	Minimum	0.01	5.00	0.43	0.01	0.01	0.01	0.01	0.01
	Maximum	12.00	17.00	12.00	0.46	0.54	0.57	0.57	0.57
	Median	0.11	5.00	5.00	0.03	0.03	0.04	0.05	0.04
Soils	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-
Solidified inorganics	Minimum	0.01	0.60	0.01	0.01	0.01	0.01	0.01	0.01
	Maximum	230.00	130.00	320.00	220.00	260.00	280.00	386.14	0.280
	Median	0.16	5.00	2.20	0.12	0.18	0.15	0.26	0.20
Solidified Organics	Minimum	0.03	0.60	0.43	0.03	0.03	0.03	0.03	0.03
	Maximum	4367.90	48047.50	6991.60	4367.90	4367.9	4367.90	8626.8	8735.9
	Median	20.50	17.00	18.00	1.40	1.20	1.25	1.30	1.45
Uncategorized metals	Minimum	0.01	0.70	0.02	0.01	0.01	0.01	0.01	0.01
	Maximum	1821.1	8400.00	1494.70	1200.00	2400.00	1200.0	1200.0	1200.00
	Median	0.40	17.00	5.10	0.24	0.28	0.29	0.32	0.30
Unknown	Minimum	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-
	Median	-	-	-	-	-	-	-	-

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	Bromoform	1,1,2,2-Tetra chlororethane	1,3,5-Trimethyl benzene	1,2,4-Trimethyl benzene
Combustible	Minimum	0.02	0.02	0.01	0.01
	Maximum	160.00	140.00	77.00	93.00
	Median	0.40	0.38	0.24	0.26
Filter	Minimum	0.03	0.02	0.01	0.02
	Maximum	1.30	1.10	0.61	1.20
	Median	0.20	0.20	0.13	0.20
Graphite	Minimum	0.01	0.01	0.01	0.01
	Maximum	1.20	1.40	0.95	2.00
	Median	0.02	0.02	0.01	0.02
Heterogeneous	Minimum	0.03	0.03	0.02	0.02
	Maximum	250.00	250.00	250.00	384.00
	Median	0.30	0.30	0.30	0.40
Inorganic non-metal	Minimum	0.01	0.01	0.01	0.01
	Maximum	5.00	2.00	1.40	1.60
	Median	0.09	0.10	0.07	0.08
Lead/cadmium metal waste	Minimum	0.05	0.06	0.04	0.06
	Maximum	90.00	90.00	90.00	90.00
	Median	0.24	0.24	0.24	0.47
Salt waste	Minimum	0.01	0.01	0.01	0.01
	Maximum	0.48	0.54	0.38	0.38
	Median	0.03	0.03	0.03	0.04

Table C2-3
Minimum, Maximum, and Median Values of Waste Matrix Code Groups
(Continued)

Waste Matrix Code Group	Value	Bromoform	1,1,2,2-Tetra chlororethane	1,3,5-Trimethyl benzene	1,2,4-Trimethyl benzene
Soils	Minimum	-	-	-	-
	Maximum	-	-	-	-
	Median	-	-	-	-
Solidified inorganics	Minimum	0.01	0.01	0.01	0.01
	Maximum	240.00	270.00	190.00	250.00
	Median	0.13	0.13	0.10	0.18
Solidified organics	Minimum	0.03	0.03	0.02	0.02
	Maximum	4367.90	4367.96	4367.90	4367.90
	Median	1.05	1.20	0.83	0.99
Uncategorized metals	Minimum	0.01	0.01	0.01	0.01
	Maximum	1200.00	1200.00	1200.00	2400.00
	Median	0.23	0.26	0.20	0.23
Unknown	Minimum	-	-	-	-
	Maximum	-	-	-	-
	Median	-	-	-	-

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
000365	RFETS	Uncategorized Metal	217	480	17.00 U	24.00 U	15.00 U	22.00 U	32.00 J	280.00	18.00 U	11.00 U
000371	INEL	Graphite	215	300	17.00 U	0.02 U	0.60 J	0.03 U	17.00 U	0.76 J	0.03 U	0.03 U
000373	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	17.00 U	0.07 J	0.02 U	0.02 U
000384	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 U	0.02 J	0.02 U	5.00 U	0.05 J	0.01 U	0.01 U
000393	INEL	Uncategorized Metal	217	480	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.17 J	0.04 U	0.03 U
000401	RFETS	Inorganic Non-metal	222	371	5.00 U	0.03 U	0.04 J	0.03 U	8.70 J	0.51 U	0.02 U	0.01 U
000403	INEL	Inorganic Non-metal	218	440	17.00 U	0.06 U	0.13 J	0.05 U	17.00 U	0.33 J	0.04 U	0.03 U
000405	RFETS	Uncategorized Metal	217	480	8.00 J	1.80 U	1.10 U	1.60 U	55.00 J	250.00	1.30 U	0.81 U
000436	INEL	Solidified Organics	212	3	17.00 U	35.00 U	740.00	44.00 U	17.00 U	56.00 U	42.00 U	40.00 U
000442	INEL	Solidified Inorganics	213	4	3300.0	0.04 U	0.08 U	0.06 U	51.00 U	1.90	0.05 U	0.05 U
000446	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.08 J	0.01 U	0.01 U
000478	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.05 J	0.02 U	5.00 U	0.13	0.01 U	0.01 U
000501	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 J	0.02 U	17.00 U	0.05 J	0.02 U	0.02 U
000558	INEL	Heterogeneous	221	464	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.35 J	0.14 U	0.09 U
000567	RFETS	Inorganic Non-metal	222	371	17.00 J	3.20 U	2.00 J	3.00 U	5.00 U	56.00	2.40 U	1.50 U
000568	RFETS	Solidified Organics	226	432	17.00 U	2.00 U	1.20 U	1.80 U	17.00 U	1.40 U	1.50 U	0.90 U
000593	INEL	Solidified Inorganics	211	7	17.00 U	0.01 U	0.30 J	0.02 U	17.00 U	0.13 J	0.02 U	0.02 U
000613	INEL	Graphite	215	300	17.00 U	0.06 U	0.04 J	0.05 U	17.00 U	0.04 U	0.04 U	0.03 U
000630	INEL	Solidified Inorganics	213	4	4300.0	0.05 U	0.10 U	0.07 U	51.00 U	0.23 J	0.07 U	0.06 U
000648	RFETS	Solidified Inorganics	213	4	1700.0 D	0.06 U	0.04 U	0.05 U	70.00 U	0.47 D	0.04 U	0.03 U
000675	RFETS	Inorganic Non-metal	218	440	6.20 J	0.30 U	0.19 J	0.27 U	14.00 J	0.62 J	0.22 U	0.14 U
000823	RFETS	Solidified Inorganics	213	4	3700.0 D	0.04 U	0.19 JB	0.04 U	120.00 U	1.50	0.03 U	0.02 U
000828	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	17.00 U	0.05 J	0.02 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
001016	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 J	0.02 U	17.00 U	0.05 J	0.02 U	0.02 U
001024	INEL	Graphite	215	300	24.00 J	0.02 U	0.03 J	0.02 U	17.00 U	0.07 J	0.02 U	0.02 U
001084	INEL	Solidified Inorganics	213	4	17.00 U	0.02 U	0.13 JB	0.02 U	17.00 U	0.19 J	0.02 U	0.02 U
001139	INEL	Solidified Inorganics	211	7	17.00 U	0.13 U	0.31 J	0.76 J	17.00 U	0.21 U	0.19 J	0.15 U
001157	INEL	Combustible	223	339	17.00 U	0.06 U	0.04 J	0.05 U	17.00 U	1.60	0.07 J	0.03 U
001161	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 U	0.03 U	17.00 U	0.05 J	0.03 U	0.02 U
001258	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.16	0.02 U	5.00 U	0.09 J	0.01 U	0.01 U
001370	INEL	Combustible	223	339	17.00 U	0.11 U	0.77 J	0.12 U	17.00 U	2.00	0.13 U	0.09 U
001377	INEL	Combustible	223	339	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	4.10	0.02 U	0.04 J
001410	INEL	Solidified Inorganics	214	292	17.00 U	0.24 U	0.15 U	0.22 U	17.00 U	0.19 J	0.18 U	0.11 U
001437	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	0.03 J	0.04 J	7.20 J	0.45	0.02 J	0.01 U
001475	RFETS	Solidified Inorganics	211	1	5.00 U	0.39 U	23.00 D	0.36 U	5.00 U	0.21 U	0.29 U	0.18 U
001493	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.15	0.02 U	5.00 U	0.08 J	0.01 U	0.01 U
001619	INEL	Graphite	215	300	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.05 J	0.04 U	0.03 U
001625	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.08 J	0.02 U	0.02 U
001633	INEL	Solidified Organics	226	432	17.00 U	1.40 U	0.89 U	1.30 U	17.00 U	0.98 U	1.00 U	0.89 J
001655	INEL	Combustible	223	339	17.00 U	3.80 U	2.40 U	3.40 U	17.00 U	3.00 J	0.02 U	1.70 U
001662	INEL	Graphite	215	300	17.00 U	0.01 U	0.06 J	0.02 U	17.00 U	0.04 J	0.02 U	0.02 U
001663	RFETS	Solidified Organics	226	432	17.00 U	0.84 U	0.53 U	0.77 U	17.00 U	140.00	0.63 U	0.39 U
001667	INEL	Graphite	215	300	17.00 U	0.01 U	0.06 J	0.02 U	17.00 U	0.08 J	0.02 U	0.02 U
001670	RFETS	Salt Waste	224	411	5.00 U	0.07 U	0.06 J	0.07 U	5.00 U	0.85	0.06 U	0.03 U
001677	INEL	Heterogeneous	221	302	17.00 U	0.38 U	0.70 U	0.50 J	17.00 U	0.74 J	0.46 U	0.58 J
001678	RFETS	Combustible	223	339	5.00 U	0.20 U	0.28 J	0.18 U	18.00 J	7.40	1.20	0.09 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
001689	INEL	Heterogeneous	221	302	17.00 U	0.07 U	0.06 J	0.07 U	17.00 U	0.68	0.06 U	0.03 U
001692	RFETS	Solidified Organics	226	432	17.00 U	0.51 U	0.32 U	0.46 U	17.00 U	0.35 U	0.38 U	0.23 U
001695	INEL	Combustible	223	339	17.00 U	3.20 U	2.00 U	3.00 U	2.40 U	4.80 J	0.03 U	1.50 U
001697	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	17.00 U	0.07 J	0.02 U	0.02 U
001751	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.09 J	0.01 U	0.01 U
001752	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.08 J	0.02 U	0.02 U
001754	INEL	Uncategorized Metal	217	320	11.00 U	0.37 U	0.15 J	0.20 U	17.00 U	1.70 B	5.60 U	0.04 U
001757	INEL	Inorganic Non-metal	222	371	17.00 U	0.06 U	0.07 JB	0.05 U	17.00 U	0.19 J	0.04 U	0.03 U
001773	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.10 J	35.00 U	0.02 U
001779	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.04 J	0.04 U	0.02 U
001784	INEL	Combustible	223	339	17.00 U	0.06 U	0.07 J	0.05 U	17.00 U	1.10	0.02 U	0.03 U
001813	INEL	Solidified Inorganics	213	4	17.00 U	4.60 U	8.60 JB	5.90 U	17.00 U	7.40 U	0.30 J	5.40 U
001873	INEL	Solidified Inorganics	214	292	17.00 U	0.07 U	0.05 J	0.06 U	17.00 U	0.05 U	0.05 U	0.03 U
001899	RFETS	Solidified Inorganics	211	3	92.00 J	260.00 U	3300.0 B	240.00 U	5.70 J	230.00 U	200.00 U	120.00
001900	INEL	Solidified Inorganics	214	292	17.00 U	0.07 U	0.07 J	0.08 J	17.00 U	0.05 J	0.05 U	0.03 U
001919	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.20	0.01 U	0.01 U
001937	RFETS	Solidified Organics	212	3	74.00 J	31.00 U	31.00 JB	29.00 U	6.90 J	27.00 U	24.00 U	14.00 U
002013	RFETS	Solidified Organics	212	3	68.00 J	22.00 U	17.00 JB	20.00 U	5.00 U	20.00 U	17.00 U	10.00 U
002046	INEL	Solidified Organics	212	3	17.00 U	29.00 U	140.00	37.00 U	17.00 U	46.00 U	1.30	34.00 U
002065	INEL	Solidified Inorganics	214	292	5.00 U	0.21 U	0.13 U	0.19 U	5.00 U	0.18 U	0.16 U	0.10 U
002084	INEL	Solidified Inorganics	213	4	1900.0	0.03 U	0.11 J	0.04 U	0.00	0.47 J	7.60 U	0.03 U
002220	RFETS	Uncategorized Metal	217	481	5.00 U	0.06 U	0.04 U	0.05 U	5.00 U	0.98	1.10	0.03 U
002222	INEL	Graphite	215	300	79.00 J	0.02 U	0.06 J	0.02 U	17.00 U	0.07 J	0.07 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
002338	RFETS	Inorganic Non-metal	222	371	17.00 U	1.60 U	1.00 U	1.40 U	17.00 U	1.10 U	1.20 U	0.72 U
002354	INEL	Combustible	223	339	17.00 U	0.06 U	0.09 U	0.07 U	17.00 U	4.20	0.04 U	0.05 U
002363	INEL	Inorganic Non-metal	222	371	17.00 U	0.06 U	0.09 JB	0.05 U	17.00 U	0.32 J	0.04 U	0.03 U
002365	INEL	Uncategorized Metal	217	480	17.00 U	0.14 U	0.09 U	0.13 U	17.00 U	6.20	0.04 U	0.06 U
002542	INEL	Solidified Organics	212	3	17.00 U	6.30 U	47.00	7.90 U	17.00 U	10.00 U	77.00 U	7.30 U
002678	RFETS	Solidified Organics	226	432	17.00 U	1.80 U	1.10 U	1.60 U	17.00 U	1.30 U	1.40 U	0.82 U
002791	INEL	Inorganic Non-metal	222	371	17.00 U	0.09 U	0.11 J	0.09 U	17.00 U	0.64	36.00 U	0.04 U
002797	RFETS	Solidified Organics	226	432	17.00 U	0.90 U	0.57 U	0.82 U	17.00 U	0.63 U	0.67 U	0.41 U
002814	RFETS	Solidified Inorganics	211	7	5.00 U	0.41 U	31.00	0.52 J	5.00 U	0.36 U	0.31 U	0.19 U
003017	INEL	Solidified Inorganics	211	1	5.00 U	0.10 U	0.06 U	0.09 U	5.00 U	1.00	0.08 U	0.05 U
003088	INEL	Inorganic Non-metal	222	371	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.56	0.04 J	0.03 U
003091	RFETS	Inorganic Non-metal	222	371	64.00 J	0.06 U	0.07 J	0.05 U	17.00 U	0.14 J	0.04 U	0.03 U
003111	INEL	Inorganic Non-metal	222	371	17.00 U	0.06 U	0.10 J	0.05 U	15.00 U	0.46	0.25 J	0.03 U
003121	RFETS	Solidified Inorganics	211	7	5.00 U	0.28 U	17.00 D	0.25 U	5.00 U	0.24 U	0.21 U	0.13 U
003129	RFETS	Solidified Inorganics	211	7	5.00 U	0.04 U	2.40	0.06 J	5.00 U	0.10 J	0.03 U	0.02 U
003130	RFETS	Solidified Inorganics	211	7	5.00 U	0.08 U	5.00 D	0.09 JD	5.00 U	0.13 JD	0.06 U	0.04 U
003173	RFETS	Solidified Inorganics	211	7	5.00 U	0.03 U	1.00	0.03 J	5.00 U	0.12 J	0.03 U	0.02 U
003181	RFETS	Solidified Inorganics	211	7	5.00 U	0.03 U	0.23	0.03 U	5.00 U	0.05 J	0.02 U	0.01 U
003189	INEL	Solidified Organics	212	3	17.00 U	64.00 U	1800.0	81.00 U	17.00 U	100.00 U	0.02 U	74.00 U
003192	RFETS	Solidified Inorganics	211	7	5.00 U	0.46 U	20.00	0.77 J	7.10 J	7.20	0.35 U	0.21 U
003215	RFETS	Solidified Inorganics	211	7	5.00 U	0.03 U	1.60	0.08 J	5.00 U	0.12 J	0.02 U	0.01 U
003277	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.08 J	0.01 U	0.01 U
003394	RFETS	Solidified Inorganics	211	7	5.00 U	0.06 U	0.09 J	0.07 J	5.00 U	0.26 J	0.04 U	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
003406	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	1.00	0.02 J	5.00 U	0.06 J	0.01 U	0.01 U
003455	RFETS	Solidified Inorganics	211	3	190.00	500.00 U	12000 B	460.00 U	10.00 J	440.00 U	380.00 U	230.00 U
003547	RFETS	Solidified Inorganics	211	7	5.00 U	0.18 U	0.51 J	0.17 U	5.00 U	0.16 U	0.14 U	0.08 U
003577	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.07 J	0.02 U	0.01 U
003854	INEL	Solidified Organics	212	3	17.00 U	29.00 U	400.00	37.00 U	17.00 U	47.00 U	0.04 J	34.00 U
003890	INEL	Solidified Inorganics	111	7	5.00 U	0.06 U	0.13 J	0.05 U	5.00 U	0.11 J	0.04 U	0.03 U
003921	INEL	Solidified Inorganics	111	7	5.00 U	0.07 U	0.17 J	0.06 U	5.00 U	0.14 J	0.05 U	0.03 U
003991	INEL	Combustible	223	339	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	1.30	0.02 U	0.02 U
003997	INEL	Combustible	223	339	15.00 U	0.04 U	0.06 U	0.04 U	17.00 U	5.00	130.00 U	0.03 U
004099	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	0.04 J	0.03 U	5.00 U	0.06 J	0.02 U	0.01 U
004111	RFETS	Salt Waste	224	411	5.00 U	0.06 U	0.04 U	0.05 U	5.00 U	0.25 J	0.04 U	0.03 U
004112	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	17.00 U	0.09 J	0.04 J	0.02 U
004123	INEL	Combustible	223	339	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	3.00	0.02 U	0.02 U
004125	INEL	Uncategorized Metal	217	480	17.00 U	0.06 U	0.04 U	0.05 U	17.00 U	0.37 J	0.04 U	0.03 U
004150	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	15.00 U	0.06 J	0.10 J	0.02 U
004160	INEL	Combustible	223	339	110.00	110.00 U	180.00	120.00 U	17.00 U	100.00 U	0.02 U	93.00 U
004166	INEL	Inorganic Non-metal	222	371	40.00 J	0.06 U	0.09 J	0.05 U	17.00 U	0.23 J	0.04 U	0.03 U
004186	INEL	Combustible	223	339	17.00 U	0.02 U	0.16 J	0.02 U	17.00 U	1.20	0.02 U	0.02 U
004195	RFETS	Salt Waste	224	411	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.11	0.01 U	0.01 U
004196	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	17.00 U	0.29 J	0.02 U	0.02 U
004206	INEL	Combustible	223	339	15.00 U	0.02 U	0.03 J	0.02 U	17.00 U	2.70	0.02 U	0.01 U
004208	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 U	0.02 U	51.00 U	0.05 J	0.03 U	0.02 U
004283	INEL	Solidified Inorganics	211	1	17.00 U	0.01 U	4.40	0.02 U	22.00 J	2.70	0.50 J	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
004326	INEL	Solidified Inorganics	213	4	1100.0	0.01 U	0.11 J	0.02 U	17.00 U	0.32 J	0.02 U	0.02 U
004393	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	0.06 J	0.03 U	5.00 U	0.62	0.03 U	0.02 U
004410	INEL	Solidified Inorganics	211	1	5.00 U	0.06 U	0.10 J	0.05 U	5.00 U	0.12 J	0.04 U	0.03 U
004495	INEL	Solidified Inorganics	213	4	17.00 U	0.01 U	0.08 J	0.02 U	17.00 U	0.13 J	220.00 U	0.02 U
004516	INEL	Solidified Inorganics	211	1	5.00 U	0.06 U	0.05 J	0.05 U	5.00 U	0.12 J	0.04 U	0.03 U
004884	INEL	Solidified Inorganics	213	4	4000.0	0.02 U	0.04 U	0.03 U	17.00 U	1.30	0.02 U	0.03 U
004963	INEL	Combustible	223	339	31.00 J	0.06 U	0.15 J	0.07 U	17.00 U	4.10	0.02 U	0.05 U
004968	RFETS	Uncategorized Metal	217	320	5.00 U	1.10 U	1.00 J	1.00 U	12.00 J	0.96 U	0.82 U	0.51 U
004981	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 U	0.19	0.02 U	5.00 U	0.07 J	0.01 U	0.01 U
004988	RFETS	Salt Waste	224	411	5.00 U	0.06 U	0.04 U	0.05 U	5.00 U	0.36	0.04 U	0.03 U
005006	RFETS	Salt Waste	224	411	5.00 U	0.06 U	0.04 J	0.05 U	5.00 U	0.41	0.04 U	0.03 U
005012	INEL	Combustible	223	339	17.00 U	0.01 U	0.11 J	0.02 U	17.00 U	0.61 J	0.04 U	0.02 U
005015	INEL	Solidified Organics	226	432	17.00 U	2.80 U	1.80 U	2.60 U	17.00 U	38.00	2.10 U	1.30 U
005235	INEL	Solidified Organics	226	432	17.00 U	0.06 U	0.09 JB	0.05 U	17.00 U	0.08 U	0.04 U	0.03 U
005262	INEL	Solidified Organics	212	3	80.00 J	180.00 U	6400.0 B	230.00 U	17.00 U	290.00 U	0.10 J	210.00 U
005358	INEL	Solidified Inorganics	211	1	17.00 U	0.01 U	0.20 J	0.02 U	17.00 U	0.14 J	0.05 J	0.02 U
005398	INEL	Solidified Inorganics	211	1	5.00 U	0.06 U	18.00 E	0.10 J	5.00 U	0.05 U	0.04 U	0.03 U
005415	INEL	Solidified Inorganics	211	1	5.00 U	0.06 U	0.04 J	0.05 U	5.00 U	0.06 J	0.04 U	0.03 U
005530	INEL	Graphite	215	303	17.00 U	0.02 U	0.06 J	0.02 U	33.00 J	0.20 J	3.00 U	0.02 U
005535	INEL	Solidified Organics	226	432	17.00 U	0.11 U	0.07 J	0.10 U	17.00 U	0.08 JD	0.08 U	0.05 U
005735	INEL	Solidified Inorganics	211	7	5.00 U	0.06 U	2.20	0.05 U	5.00 U	0.06 J	0.04 U	0.03 U
005738	INEL	Solidified Inorganics	211	7	5.00 U	0.04 U	0.40	0.04 U	5.00 U	0.05 J	0.03 U	0.02 U
006242	INEL	Inorganic Non-metal	222	371	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.37	2.40 U	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
006252	RFETS	Lead/Cadmium Metal Waste	123	339	5.00 U	7.40 U	4.70 U	6.80 U	16.00 J	6.50 U	5.60 U	3.40 U
006325	RFETS	Solidified Inorganics	213	4	2700.0 D	0.02 U	0.04 JB	0.02 U	100.00 U	0.22	0.02 U	0.01 U
006669	INEL	Solidified Inorganics	214	292	5.00 U	0.28 U	0.18 U	0.26 U	5.00 U	0.24 U	0.21 U	0.13 U
006773	RFETS	Solidified Inorganics	213	4	2800.0 D	0.21 U	0.44 JB	13.00	120.00 U	1.80	14.00	0.10 U
006857	INEL	Combustible	223	339	17.00 U	0.02 U	0.04 J	0.02 U	18.00 U	1.10	12.00	0.02 J
006865	RFETS	Solidified Organics	226	432	5.00 U	0.15 U	0.36 J	0.14 U	5.00 U	0.13 U	0.11 U	0.07 U
006876	INEL	Filter	219	335	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	0.78 J	0.17 U	0.02 U
006879	INEL	Solidified Organics	226	432	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.13 U	0.14 U	0.09 U
006886	INEL	Solidified Organics	226	432	17.00 U	0.62 U	0.39 U	0.57 U	17.00 U	0.43 U	0.46 U	0.97 J
007034	INEL	Combustible	216	337	15.00 U	4.00 U	2.50 U	3.60 U	17.00 U	2.80 U	0.20 U	2.60
007146	INEL	Inorganic Non-metal	222	371	17.00 U	3.20 U	2.00 U	3.10	17.00 U	2.20 U	0.02 U	1.90
007170	INEL	Combustible	216	337	18.00 U	0.31 U	0.49 U	0.35 U	39.00 J	0.32 J	4.60	0.26 U
007231	INEL	Filter	219	338	17.00 U	0.14 U	0.22 U	0.16 U	17.00 U	0.22 J	0.07 J	0.12 U
007511	INEL	Inorganic Non-metal	122	374	17.00 U	0.07 U	0.10 J	0.06 U	17.00 U	0.21 J	0.05 U	0.03 U
007518	INEL	Inorganic Non-metal	122	374	17.00 U	0.11 U	0.07 J	0.10 U	27.00 J	0.93	0.08 U	0.05 U
007667	INEL	Salt Waste	124	411	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.05 J	0.01 U	0.01 U
007920	INEL	Filter	121	302	17.00 U	0.45 U	0.28 U	0.41 U	17.00 U	0.39 U	0.34 U	0.21 U
008203	INEL	Inorganic Non-metal	118	440	17.00 U	0.11 U	0.08 J	0.10 U	17.00 U	0.16 J	0.08 U	0.05 U
008207	INEL	Heterogeneous	116	336	17.00 U	0.14 U	0.09 U	0.13 U	36.00 J	7.40 J	1.00 U	0.08 J
008218	INEL	Heterogeneous	116	330	17.00 U	0.14 U	0.10 J	0.13 U	36.00 J	6.40	0.77 J	0.06 U
008269	INEL	Uncategorized Metal	117	320	17.00 U	0.36 U	0.23 U	0.34 U	17.00 U	0.32 U	0.27 U	0.17 U
008287	INEL	Inorganic Non-metal	122	374	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.13 J	0.04 U	0.03 U
008359	INEL	Heterogeneous	116	330	33.00 J	0.36 U	0.23 U	0.34 U	33.00 J	6.80	0.82 J	0.17 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
008383	INEL	Lead/Cadmium Metal Waste	123	339	13.00 J	9.90 U	6.30 J	13.00 J	5.00 U	8.60 U	7.40 U	4.60 U
008848	INEL	Inorganic Non-metal	218	440	120.00	0.16 U	0.30 U	0.28 J	17.00 U	2.60	16.00	0.19 U
008859	INEL	Inorganic Non-metal	218	440	17.00 U	0.84 U	0.53 U	0.77 U	17.00 U	0.59 U	0.55 U	0.39 U
008860	INEL	Uncategorized Metal	217	480	17.00 U	2.10 U	1.40 U	2.00 U	17.00 U	15.00	1.60 U	0.98 U
008864	INEL	Uncategorized Metal	217	480	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.21 J	0.14 U	0.09 U
008872	INEL	Solidified Inorganics	214	292	5.00 U	0.07 U	0.05 U	0.07 U	5.00 U	0.07 U	0.06 U	0.03 U
008874	RFETS	Uncategorized Metal	217	480	5.00 U	66.00 U	42.00 U	61.00 U	14.00 J	58.00 U	50.00 U	30.00 U
008878	INEL	Uncategorized Metal	217	480	17.00 U	9.00 U	5.70 U	8.30 U	17.00 U	6.30 U	6.70 U	4.10 U
008880	RFETS	Graphite	115	312	5.00 U	2.60 U	1.60 J	2.40 U	8.40 J	23.00	1.90 U	1.20 U
009006	INEL	Solidified Inorganics	211	7	17.00 U	0.02 U	18.00 E	0.05 J	18.00 U	0.02 U	0.09 U	0.02 U
009011	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	0.58	0.04 J	5.00 U	0.33	0.02 U	0.01
009061	RFETS	Inorganic Non-metal	218	440	5.00 U	0.18 U	0.13 J	0.17 U	5.00 U	1.10	0.14 U	0.08 U
009180	INEL	Combustible	223	339	17.00 U	0.71 U	10.00	1.00	17.00 U	14.00	0.70 U	0.59 U
009225	INEL	Uncategorized Metal	217	481	17.00 U	0.06 U	0.13 J	0.05 U	18.00 U	0.07 U	0.22 U	0.03 U
009252	INEL	Combustible	223	339	17.00 U	40.00 U	25.00 U	36.00 U	17.00 U	270.00	11.00	18.00 U
009296	INEL	Combustible	223	339	17.00 U	5.60 U	3.60 U	5.20 U	17.00 U	3.90 U	0.02 U	2.60 U
009299	INEL	Combustible	223	339	17.00 U	0.02 U	0.03 U	0.02 U	22.00 J	1.90	6.10	0.02 U
009399	INEL	Inorganic Non-metal	218	440	17.00 U	0.73 U	0.46 U	0.67 U	17.00 U	0.61 J	0.55 U	0.34 U
009422	RFETS	Combustible	216	337	5.00 U	10.00 U	6.60 U	9.60 U	5.00 U	150.00 D	7.80 U	4.80 U
009423	INEL	Combustible	216	337	17.00 U	1.40 U	2.70 U	7.30	17.00 U	11.00	1.10 U	1.70 U
009435	INEL	Combustible	216	337	39.00 J	0.73 U	0.46 U	0.67 U	17.00 U	0.51 U	0.32 U	0.34 U
009449	INEL	Inorganic Non-metal	218	440	17.00 U	0.08 U	0.15 J	0.07 U	17.00 U	0.31 J	0.85 J	0.04 U
009471	INEL	Combustible	216	337	18.00 U	0.07 U	0.11 U	0.08 U	18.00 U	0.23 J	0.16 U	0.06 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
009475	INEL	Inorganic Non-metal	218	442	17.00 U	0.58 U	1.10 U	0.73 U	17.00 U	4.90	0.12 J	0.67 U
009489	INEL	Combustible	216	337	18.00 U	0.18 U	0.29 U	0.21 U	3.60 J	3.30	0.52 J	0.15 U
009587	INEL	Uncategorized Metal	117	320	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.08 J	0.01 U	0.01 U
009591	INEL	Inorganic Non-metal	118	440	17.00 U	0.07 U	0.06 J	0.06 U	17.00 U	0.13 J	0.05 U	0.03 U
009592	INEL	Inorganic Non-metal	118	440	17.00 U	0.14 U	0.09 U	0.13 U	17.00 U	0.16 J	0.10 U	0.06 U
009596	INEL	Uncategorized Metal	117	320	17.00 U	0.26 U	0.16 U	0.23 U	17.00 U	0.22 U	0.19 U	0.12 U
009599	INEL	Inorganic Non-metal	118	440	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.21 J	0.04 U	0.03 U
009602	INEL	Inorganic Non-metal	218	442	17.00 U	3.80 U	2.40 U	3.50 U	17.00 U	54.00	2.80 U	1.70 U
009694	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.09 J	0.04 U	0.02 U
009735	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	17.00 U	0.05 J	0.02 U	0.02 U
009773	INEL	Combustible	223	339	17.00 U	4.40 U	8.10 U	5.50 U	17.00 U	29.00	0.14 J	5.10 U
009787	RFETS	Solidified Organics	212	3	8.90 J	350.00 U	20000	320.00 U	5.00 U	300.00 U	260.00 U	160.00 U
009873	RFETS	Solidified Inorganics	211	1	5.00 U	0.09 U	0.10 J	0.14 J	5.00 U	0.43 J	0.07 U	0.04 U
010216	INEL	Filter	219	338	17.00 U	0.89 U	1.40 U	5.20	17.00 U	0.83 U	0.82 U	0.74 U
010224	INEL	Filter	219	338	17.00 U	0.27 U	0.42 U	0.30 U	17.00 U	0.44 J	0.16 J	0.22 U
010230	INEL	Heterogeneous	216	330	17.00 U	0.14 U	0.22 U	3.60	18.00 U	0.75 J	0.55 U	2.30
010273	INEL	Combustible	216	337	18.00 U	0.13 U	0.20 U	0.18 J	18.00 U	1.30	0.44 U	0.11 U
010295	INEL	Inorganic Non-metal	218	442	17.00 U	0.11 U	0.14 J	0.10 U	17.00 U	3.00	0.15 U	0.05 U
010305	RFETS	Inorganic Non-metal	218	442	91.00 J	1.30 U	0.84 U	1.20 U	5.00 U	1.20 U	0.99 U	0.61 U
010364	RFETS	Combustible	216	337	5.00 U	1.70 U	1.10 U	1.50 U	5.00 U	2.80 J	1.30 U	0.77 U
010371	INEL	Combustible	216	337	6.60 U	0.27 U	63.00 E	1.70	17.00 U	8.50	0.37 U	0.39 U
010407	RFETS	Uncategorized Metal	217	480	5.00 U	0.23 U	1.30 J	0.21 U	13.00 J	0.56 J	0.17 U	0.11 U
010411	INEL	Combustible	216	337	160.00	3.80 U	2.40 U	3.40 U	15.00 U	2.60 U	0.42 U	1.70 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
010415	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.04 U	0.14 U	0.03 U
010426	INEL	Inorganic Non-metal	218	442	17.00 U	0.01 U	0.11 J	0.05 J	17.00 U	3.30	2.50	0.02 U
010463	INEL	Solidified Inorganics	213	4	860.00 U	0.56 U	0.36 U	1.50 J	34.00 U	0.39 U	1.40 J	0.26 U
010487	INEL	Salt Waste	224	414	17.00 U	1.00 U	6.70	0.94 U	37.00 J	3.30 J	2.20 J	0.47 U
010492	INEL	Uncategorized Metal	217	480	17.00 U	1.10 U	0.70 U	1.00 U	94.00 U	0.77	2.00	0.50 U
010498	INEL	Uncategorized Metal	217	480	17.00 U	0.04 U	0.11 J	0.06 J	17.00 U	2.30	1.20	0.04 U
010510	RFETS	Heterogeneous	216	336	5.00 U	3.20 U	2.00 U	3.00 U	9.60 J	2.80 U	2.40 U	1.50 U
010546	RFETS	Heterogeneous	216	330	10.00 U	88.00 U	300.00 J	81.00 U	270.00	3000.0	66.00 U	40.00 U
010578	INEL	Solidified Organics	226	432	17.00 U	1.90 U	5.00 J	1.80 U	17.00 U	1.30 U	1.40 U	0.88 U
010588	RFETS	Solidified Inorganics	211	2	5.00 U	1.60 U	1.00 U	1.50 U	5.00 U	1.40 U	1.20 U	0.76 U
010663	INEL	Combustible	216	337	18.00 U	0.46 U	0.72 U	0.52 U	18.00 U	0.43 U	0.55 U	0.38 U
010676	INEL	Heterogeneous	216	330	18.00 U	0.37 U	0.57 U	1.40	17.00 U	0.34 U	1.60	0.31 U
010800	INEL	Filter	219	338	17.00 U	0.12 U	0.19 U	0.20 J	17.00 U	0.12 U	0.07 J	0.15 J
010807	INEL	Combustible	216	337	17.00 U	2.50 U	1.60 U	2.30 U	17.00 U	1.70 U	1.30 U	1.20 U
010808	INEL	Combustible	216	337	17.00 U	0.30 U	0.56 U	0.38 U	18.00 U	0.49 U	1.80 U	0.56 J
010814	RFETS	Solidified Inorganics	211	1	5.00 U	0.67 U	0.42 U	0.61 U	5.00 U	0.58 U	0.50 U	0.31 U
010837	INEL	Solidified Organics	226	432	17.00 U	0.84 U	0.53 U	0.77 U	17.00 U	0.59 U	0.63 U	0.39 U
010848	INEL	Filter	219	338	15.00 U	0.35 U	0.54 U	0.39 U	17.00 U	0.53 J	0.59 U	0.29 U
010883	INEL	Solidified Organics	226	432	17.00 U	2.20 U	1.40 U	2.00 U	17.00 U	1.50 U	1.60 U	1.00 U
010921	INEL	Inorganic Non-metal	222	371	17.00 U	0.19 U	0.12 U	17.00	18.00 U	0.13 U	0.66 U	0.09 U
011004	INEL	Uncategorized Metal	217	480	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.09 J	0.04 U	0.03 U
011021	INEL	Solidified Organics	226	432	17.00 U	0.34 U	0.21 U	0.78 J	17.00 U	0.24 U	2.20	0.16 U
011042	INEL	Inorganic Non-metal	218	442	17.00 U	1.20 U	0.75 U	1.40	17.00 U	16.00	2.80 U	0.54 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
011044	INEL	Inorganic Non-metal	218	440	17.00 U	0.67 U	0.43 U	0.62 U	17.00 U	0.47 U	0.21 U	0.31 U
011067	RFETS	Solidified Inorganics	213	4	610.00	2.20 U	1.40 U	5.50 J	25.00 U	1.90 U	1.90 J	1.00 U
011102	RFETS	Solidified Inorganics	211	1	5.00 U	0.53 U	0.34 U	1.20 J	5.00 U	4.60	0.40 U	0.24 U
011109	INEL	Solidified Inorganics	211	1	17.00 U	0.17 U	1.20	3.40	17.00 U	4.10	0.02 U	0.20 U
011147	INEL	Solidified Inorganics	213	4	4900.0	0.20 U	0.37 U	1.00	17.00 U	1.60	1.70 U	0.23 U
011173	INEL	Uncategorized Metal	217	480	17.00 U	0.05 U	0.16 J	0.06 U	17.00 U	1.50	0.04 U	0.06 U
011194	INEL	Inorganic Non-metal	218	442	83.00 J	0.14 U	0.09 U	0.13 U	17.00 U	0.10 U	0.02 U	0.06 U
011393	INEL	Uncategorized Metal	217	480	59.00 J	0.28 U	0.18 U	0.26 U	17.00 U	0.52 J	0.21 U	0.13 U
011416	INEL	Combustible	216	337	17.00 U	1.20 U	0.78 U	1.10 U	17.00 U	0.86 U	0.93 U	0.57 U
011433	INEL	Heterogeneous	216	330	18.00 U	0.46 U	0.72 U	2.70	17.00 U	0.47 J	4.20 U	0.38 U
011498	RFETS	Solidified Organics	226	432	17.00 U	3.20 U	2.00 U	3.00 U	17.00 U	2.20 U	2.40 U	1.50 U
011529	INEL	Uncategorized Metal	217	480	17.00 U	0.06 U	0.04 U	0.05 U	17.00 U	0.07 J	0.04 U	0.03 U
011601	INEL	Heterogeneous	216	336	17.00 U	1.10 U	1.70 U	1.20 U	17.00 U	1.00 U	1.30 U	1.80
011607	INEL	Heterogeneous	216	330	17.00 U	0.03 U	0.30 J	0.05 J	37.00 J	0.16 J	0.67 U	0.02 U
011637	RFETS	Filter	219	338	8.40 J	1.60 U	1.00 U	1.50 U	6.20 J	1.40 U	1.20 U	0.76 U
011735	INEL	Heterogeneous	216	330	17.00 U	1.70 U	1.10 U	1.60 U	17.00 U	1.20 U	0.48 U	0.77 U
011749	INEL	Inorganic Non-metal	225	441	100.00	0.48 U	0.30 U	0.44 U	62.00 J	0.33 U	0.56 J	0.22 U
011785	RFETS	Solidified Inorganics	211	1	5.00 U	0.06 U	0.06 J	0.05 U	5.00 U	0.08 J	0.04 U	0.03 U
012021	INEL	Solidified Inorganics	211	1	17.00 U	0.73 U	0.46 U	0.81 J	17.00 U	0.51 U	0.65 J	0.34 U
012108	INEL	Solidified Inorganics	214	292	17.00 U	0.73 U	0.46 U	0.67 U	17.00 U	0.51 U	0.55 U	0.34 U
012111	INEL	Combustible	216	337	18.00 U	1.50 U	2.30 U	1.80	17.00 U	13.00	0.02 U	1.20 U
012215	INEL	Uncategorized Metal	217	480	17.00 U	0.79 U	0.50 U	0.72 U	17.00 U	0.55 U	0.58 U	0.36 U
012313	INEL	Heterogeneous	216	336	18.00 U	0.55 U	0.86 U	0.62 U	17.00 U	0.59 J	0.02 U	0.62 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
012320	INEL	Heterogeneous	216	336	17.00 U	3.70 U	2.40 U	3.40 U	17.00 U	2.60 U	0.04 U	2.50
012356	INEL	Filter	219	338	110.00	0.20 U	0.38 U	0.26 U	18.00 J	0.33 U	2.00	0.24 U
012357	RFETS	Uncategorized Metal	217	480	8.00 J	6.00 U	3.80 U	5.50 U	22.00 J	5.20 U	4.50 U	2.70 U
012433	INEL	Filter	219	338	17.00 U	0.18 U	0.28 U	0.95 J	17.00 U	0.60 J	0.59 J	0.15 U
012469	RFETS	Solidified Inorganics	211	1	5.00 U	0.68 U	0.75 JB	0.62 U	5.00 U	0.59 U	0.51 U	0.31 U
012471	RFETS	Filter	219	338	5.00 U	0.35 U	0.22 U	0.32 U	10.00 J	1.30 J	0.26 U	0.16 U
012487	INEL	Inorganic Non-metal	218	440	17.00 U	0.02 U	0.05 JB	0.02 U	17.00 U	0.03 U	0.06 U	0.02 U
012494	INEL	Heterogeneous	216	330	17.00 U	2.20 U	1.40 U	2.10 U	17.00 U	1.60 U	2.80 U	1.00 U
012541	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.14 J	0.05 U	0.03 U
012553	INEL	Solidified Inorganics	211	1	17.00 U	0.06 U	0.04 J	0.05 U	17.00 U	0.28 J	0.04 U	0.03 U
012571	INEL	Uncategorized Metal	217	320	17.00 U	0.01 U	0.05 J	0.02 U	38.00 J	0.28 J	11.00 U	0.02 U
012611	INEL	Solidified Inorganics	211	1	17.00 U	1.20 U	0.75 U	1.10 U	17.00 U	7.00 J	0.88 U	0.54 U
012634	INEL	Solidified Inorganics	211	1	17.00 U	3.20 U	2.00 U	3.00 U	17.00 U	12.00 J	2.40 U	1.50 U
012749	INEL	Solidified Inorganics	211	1	17.00 U	0.62 U	0.39 U	0.60 J	17.00 U	0.43 U	0.46 U	0.28 U
012766	INEL	Heterogeneous	216	336	17.00 U	5.60 U	3.60 U	7.30	17.00 U	3.90 U	0.02 U	2.60 U
012802	INEL	Combustible	216	337	17.00 U	1.00 U	1.90 U	2.60	17.00 U	1.70 U	0.38 J	1.20 U
012875	RFETS	Solidified Organics	226	432	17.00 U	7.60 U	4.80 U	7.00 U	17.00 U	5.30 U	8.30	3.50 U
012878	INEL	Uncategorized Metal	217	480	17.00 U	0.55 U	1.00 U	0.70 U	17.00 U	0.88 U	0.03 U	0.64 U
012891	INEL	Heterogeneous	216	330	17.00 U	0.65 U	0.41 U	0.59 U	17.00 U	2.60	0.07 U	0.51 J
012902	INEL	Filter	219	338	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	0.02 U	0.04 J	0.02 U
012920	INEL	Inorganic Non-metal	222	371	17.00 U	2.20 U	1.40 U	44.00	17.00 U	1.60 U	1.70 U	1.00 U
012985	INEL	Inorganic Non-metal	222	371	17.00 U	3.80 U	2.40 U	3.40 U	17.00 U	2.60 U	0.32 J	2.10 J
012986	INEL	Heterogeneous	221	302	43.00 J	0.48 U	0.89 U	0.68 J	2.40 U	0.77 U	0.05 U	0.56 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
012998	INEL	Combustible	216	337	17.00 U	1.30 U	0.82 U	1.20 U	17.00 U	1.60	0.97 U	0.87 J
013106	INEL	Solidified Inorganics	111	7	5.00 U	0.03 U	1.70	0.03 U	5.00 U	0.08 J	0.04 J	0.01 U
013229	RFETS	Solidified Organics	226	432	17.00 U	0.28 U	0.18 U	0.26 U	17.00 U	0.20 U	0.21 U	0.13 U
013231	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	0.09 J	0.07 U	0.02 U
013252	INEL	Inorganic Non-metal	222	371	19.00 J	0.06 U	0.07 JB	0.05 U	17.00 U	0.19 J	52.00 U	0.03 U
013266	INEL	Combustible	223	339	17.00 U	0.79 U	0.50 U	0.72 U	17.00 U	3.90	0.02 U	0.36 U
013269	INEL	Inorganic Non-metal	218	440	17.00 U	0.05 U	0.09 U	0.06 U	17.00 U	2.80	0.02 U	0.06 U
013313	INEL	Inorganic Non-metal	218	440	17.00 U	0.06 U	0.09 U	0.05 U	17.00 U	0.04 U	0.02 U	0.03 U
013331	INEL	Salt Waste	124	411	17.00 U	0.14 U	0.09 U	0.13 U	17.00 U	0.25 J	0.10 U	0.06 U
013342	INEL	Inorganic Non-metal	218	440	17.00 U	0.01 U	0.06 J	0.02 U	17.00 U	0.72 J	0.04 J	0.02 U
013346	RFETS	Inorganic Non-metal	222	371	12.00 J	0.04 U	0.04 J	0.04 U	5.00 U	0.11 J	0.03 U	0.02
013618	INEL	Heterogeneous	216	330	17.00 U	3.80 U	2.40 U	3.40 U	17.00 U	2.60	0.04 U	1.70 U
013677	INEL	Filter	219	338	17.00 U	0.05 U	0.07 U	0.05 U	17.00 U	0.04 U	0.04 J	0.04 U
013751	INEL	Uncategorized Metal	217	480	17.00 U	1.70 U	1.10 U	1.60 U	17.00 U	1.20 U	1.30 U	0.77 U
013763	INEL	Combustible	223	339	6.60 U	11.00 U	50.00	11.00 U	17.00 U	12.00	0.32 J	16.00 U
013773	RFETS	Solidified Inorganics	111	7	5.00 U	0.15 U	0.84 J	0.26 J	5.00 U	0.13 U	0.11 U	0.07 U
013818	RFETS	Solidified Inorganics	211	1	94.00 J	0.04 U	0.04 J	0.04 U	5.00 U	0.10 J	0.03 U	0.02 U
013820	RFETS	Solidified Inorganics	211	1	11.00 U	0.05 U	0.05 J	0.04 U	11.00 U	0.28 J	0.04 U	0.02 U
013847	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.05 J	0.02 U	0.02 U
013860	INEL	Combustible	223	339	17.00 U	0.06 U	0.24 J	0.07 U	17.00 U	2.70	0.18 U	0.05 U
013876	RFETS	Solidified Inorganics	211	7	5.00 U	0.18 U	3.60	0.17 U	5.00 U	0.16 U	0.14 U	0.08 U
014007	INEL	Solidified Inorganics	211	1	17.00 U	0.02 U	0.07 J	0.02 U	17.00 U	0.20 J	0.25 U	0.02 U
014009	INEL	Solidified Inorganics	211	7	17.00 U	0.06 U	3.40	0.37 J	17.00 U	0.09 U	3.50 U	0.07 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

rum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
014010	INEL	Solidified Inorganics	211	7	17.00 U	0.01 U	3.30	0.10 J	17.00 U	0.13 J	0.29 J	0.02 U
014127	RFETS	Solidified Inorganics	211	7	5.00 U	0.03 U	2.10	0.03 U	5.00 U	0.24	0.03 U	0.02 U
014170	INEL	Solidified Inorganics	211	7	5.00 U	0.03 U	0.21	0.03 U	5.00 U	0.08 J	0.03 U	0.02 U
014330	INEL	Graphite	215	303	21.00 J	0.04 U	0.06 U	0.04 U	17.00 U	6.20	0.30 J	0.03 U
014334	INEL	Filter	219	335	11.00 U	0.05 U	0.10 J	0.05 U	17.00 U	0.22 J	0.04 U	0.07 U
014339	INEL	Solidified Organics	226	432	17.00 U	0.11 U	0.07 U	0.10 U	17.00 U	0.08 U	0.08 U	0.05 U
014342	INEL	Graphite	215	303	17.00 U	0.06 U	0.09 U	0.07 U	17.00 U	0.43 J	0.04 U	0.05 U
014345	INEL	Solidified Organics	226	432	17.00 U	0.09 U	0.10 JB	0.09 U	17.00 U	0.09 J	0.07 U	0.04 U
014346	INEL	Combustible	223	339	17.00 U	0.02 U	2.30	0.04 J	17.00 U	3.30	0.04 J	0.02 J
014348	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	17.00 U	0.04 J	0.02 U	0.02 U
014354	RFETS	Uncategorized Metal	217	481	5.00 U	0.02 U	0.22	0.02 U	5.00 U	0.33	0.02 U	0.01 U
014357	INEL	Combustible	223	339	11.00 U	11.00 U	14.00 U	11.00 U	17.00 U	11.00 U	1.20 U	16.00 U
014387	INEL	Solidified Inorganics	211	7	17.00 U	0.01 U	23.00 E	0.19 J	17.00 U	0.10 J	0.63 J	0.02 U
014466	INEL	Heterogeneous	221	302	17.00 U	0.62 U	0.39 U	0.57 U	17.00 U	0.43 U	0.46 U	0.28 U
014484	INEL	Graphite	215	300	17.00 U	0.01 U	0.03 J	0.02 U	17.00 U	0.12 J	0.02 U	0.02 U
014502	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.12	0.02 U	5.00 U	0.10 J	0.01 U	0.01 U
014504	RFETS	Solidified Inorganics	211	1	5.00 U	0.06 U	0.53 J	0.05 U	5.00 U	0.11 J	0.04 U	0.03 U
014773	INEL	Solidified Inorganics	214	292	5.00 U	0.10 U	0.06 U	0.09 U	5.00 U	0.09 U	0.07 U	0.05 U
015228	RFETS	Solidified Organics	226	432	17.00 U	0.34 U	0.21 U	1.90	17.00 U	0.24 U	0.72 J	0.16 U
015231	INEL	Inorganic Non-metal	218	440	17.00 U	0.06 U	0.09 J	0.05 U	17.00 U	0.99 J	0.88 U	0.03 U
015241	INEL	Inorganic Non-metal	218	442	17.00 U	0.10 U	0.11 J	0.09 U	17.00 U	0.45 J	0.46 U	0.04 U
015249	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	17.00 U	0.13 J	0.04 U	0.02 U
015262	RFETS	Solidified Organics	226	432	17.00 U	3.20 U	2.00 U	36.00	17.00 U	2.20 U	10.00	1.50 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
015267	INEL	Uncategorized Metal	217	480	17.00 U	2.80 U	1.80 U	2.60 U	17.00 U	2.00 U	2.10 U	1.30 U
015338	INEL	Solidified Inorganics	211	7	29.00 J	0.02 U	22.00 E	0.09 J	17.00 U	0.02 U	0.20 U	0.02 U
015434	RFETS	Solidified Organics	226	432	17.00 U	0.08 U	0.05 J	6.80	17.00 U	0.78 J	0.09 J	0.04 U
015440	RFETS	Solidified Organics	226	432	17.00 U	0.73 U	0.46 U	5.40	17.00 U	1.20	22.00	0.34 U
015515	RFETS	Solidified Organics	212	3	5.00 U	53.00 U	37.00 J	49.00 U	5.00 U	47.00 U	40.00 U	24.00 U
015532	RFETS	Solidified Organics	212	3	5.00 U	160.00 U	100.00 U	150.00 U	6.00 J	140.00 U	120.00 U	75.00 U
015543	INEL	Solidified Organics	212	3	17.00 U	70.00 U	44.00 U	64.00 U	17.00 U	49.00 U	0.39 J	32.00 U
015627	INEL	Graphite	215	300	17.00 U	0.02 U	0.03 U	0.02 U	32.00 J	0.02 U	0.14 U	0.02 U
015655	INEL	Solidified Inorganics	211	7	17.00 U	0.01 U	0.50 J	0.02 U	17.00 U	0.07 J	0.21 J	0.02 U
015674	INEL	Graphite	215	300	17.00 U	0.01 U	0.08 J	0.02 U	17.00 U	0.16 J	0.03 J	0.02 U
015675	INEL	Uncategorized Metal	217	480	17.00 U	0.14 U	0.09 U	0.13 U	17.00 U	5.50	0.75 J	0.06 U
015777	RFETS	Solidified Organics	226	432	17.00 U	0.14 U	0.09 U	1.60	17.00 U	0.20 J	3.40	0.06 U
015785	RFETS	Solidified Inorganics	211	1	15.00 U	0.65 U	0.41 U	0.85 J	15.00 U	6.40	0.48 U	0.30 U
015786	INEL	Solidified Inorganics	211	1	17.00 U	0.02 U	0.05 U	0.17 J	17.00 U	0.25 J	0.76 U	0.03 U
016242	INEL	Graphite	215	300	17.00 U	0.01 U	0.04 J	0.02 U	17.00 U	0.09 J	0.02 U	0.02 U
016612	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.17 J	0.22 J	0.03 U
016613	INEL	Solidified Organics	226	432	17.00 U	0.39 U	0.33 J	1.90 J	17.00 U	0.28 U	0.30 U	0.18 U
016707	INEL	Graphite	215	300	17.00 U	0.01 U	0.03 U	0.02 U	17.00 U	0.02 U	0.02 U	0.02 U
016738	RFETS	Solidified Inorganics	211	7	5.00 U	2.50 U	1.60 U	3.40 J	5.00 U	39.00	1.90 U	1.10 U
016790	INEL	Graphite	215	300	610.00	0.02 U	0.04 J	0.14 J	17.00 U	0.18 J	0.21 U	0.02 U
016807	INEL	Solidified Inorganics	211	1	17.00 U	0.13 U	0.24 U	0.42 J	17.00 U	2.80	1.80 U	0.15 U
016842	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	27.00 J	0.07 J	0.85 J	0.02 U
016855	RFETS	Solidified Organics	212	3	8.70 J	250.00 U	790.00 JD	230.00 U	8.30 J	220.00 U	190.00 U	120.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
016869	INEL	Solidified Inorganics	211	7	17.00 U	0.14 U	18.00	0.66 J	17.00 U	12.00	1.50	0.17 U
016964	RFETS	Solidified Inorganics	211	7	5.00 U	2.20 U	2.00 J	2.50 J	5.00 U	33.00	1.60 U	1.00 U
016986	INEL	Inorganic Non-metal	218	442	17.00 U	0.34 U	0.21 U	0.31 U	17.00 U	0.24 U	0.02 U	0.16 U
017148	INEL	Solidified Organics	226	432	17.00 U	1.20 U	0.76 U	87.00	17.00 U	3.60	0.90 U	0.55 U
017190	INEL	Solidified Inorganics	211	7	17.00 U	2.90 U	19.00	13.00	17.00 U	260.00	3.30	3.40 U
017444	INEL	Graphite	215	300	17.00 U	0.06 U	0.06 J	0.05 U	17.00 U	0.18 J	0.04 U	0.03 U
017453	INEL	Solidified Organics	212	3	5.00 U	73.00 U	46.00 U	67.00 U	7.00 J	64.00 U	54.00 U	33.00 U
017486	INEL	Solidified Inorganics	211	1	17.00 U	0.13 U	0.24 U	0.16 U	17.00 U	0.21 U	2.10 U	0.15 U
017491	INEL	Graphite	215	300	17.00 U	0.14 U	0.27 U	0.18 U	17.00 U	6.20	0.50 J	0.17 U
017495	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.08 J	0.05 U	17.00 U	0.16 J	0.62 U	0.03 U
017496	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.07 J	0.05 U	17.00 U	0.15 J	0.36 J	0.03 U
017698	RFETS	Solidified Inorganics	211	292	5.00 U	4.60 U	2.90 U	4.30 U	5.00 U	4.00 U	3.50 U	2.10 U
017709	INEL	Solidified Inorganics	211	1	17.00 U	0.01 U	0.10 J	0.03 J	17.00 U	0.40 J	0.93 J	0.02 U
017728	RFETS	Solidified Inorganics	211	1	5.00 U	1.30 U	0.84 U	1.20 U	5.00 U	14.00	0.99 U	0.61 U
017742	INEL	Inorganic Non-metal	218	440	17.00 U	1.10 U	0.71 U	1.00 U	17.00 U	2.50	1.40	0.52 U
017756	RFETS	Solidified Organics	226	432	17.00 U	3.20 U	2.00 U	130.00	17.00 U	13.00 U	2.40 U	1.50 U
017759	INEL	Solidified Organics	226	432	17.00 U	2.20 U	1.40 J	110.00	17.00 U	21.00	1.70 U	1.00 U
017788	INEL	Solidified Inorganics	211	7	17.00 U	0.97 U	15.00	3.00	17.00 U	78.00	0.88 U	1.10 U
017863	INEL	Filter	119	376	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.67 J	0.14 U	0.09 U
018111	RFETS	Solidified Inorganics	211	1	5.00 U	0.03 U	0.09 J	0.03 U	5.00 U	0.14 J	0.02 U	0.01 U
018219	RFETS	Solidified Inorganics	211	7	5.00 U	2.20 U	1.40 U	2.00 U	5.00 U	48.00	2.30 J	1.00 U
018299	INEL	Filter	119	376	17.00 U	0.28 U	0.22 J	0.26 U	17.00 U	1.20 J	0.21 U	0.13 U
018413	INEL	Graphite	115	300	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.04 J	0.01 U	0.01 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
018441	INEL	Graphite	115	300	17.00 U	0.06 U	0.04 J	0.05 U	17.00 U	0.16 J	0.04 U	0.03 U
018464	INEL	Graphite	115	300	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.07 J	0.02 U	0.01 U
018476	INEL	Solidified Inorganics	111	292	5.00 U	0.18 U	0.12 U	0.17 U	5.00 U	0.16 U	0.14 U	0.08 U
018491	INEL	Graphite	115	300	17.00 U	0.06 U	0.05 J	0.05 U	17.00 U	0.08 J	0.04 U	0.03 U
019410	INEL	Lead/Cadmium Metal Waste	123	339	5.00 U	1.20 U	9.20 D	1.10 U	6.00 J	1.10 U	0.92 U	0.56 U
019413	INEL	Lead/Cadmium Metal Waste	123	339	5.00 U	5.40 U	6.20 J	4.90 U	7.90 J	4.70 U	4.00 U	2.50 U
019572	INEL	Lead/Cadmium Metal Waste	123	339	17.00 U	0.11 U	0.28 J	0.10 U	43.00 J	7.20	0.53 J	0.06 J
021031	RFETS	Solidified Inorganics	214	292	5.00 U	0.08 U	0.10 J	0.08 U	5.00 U	0.07 U	0.06 U	0.04 U
021172	RFETS	Inorganic Non-metal	218	442	5.00 U	0.02 U	0.04 J	0.02 U	5.00 U	0.08 J	0.02 U	0.01 U
021306	INEL	Solidified Inorganics	213	4	580.00	0.06 U	0.04 U	0.05 U	17.00 U	0.04 U	0.04 U	0.03 U
021392	RFETS	Solidified Inorganics	214	292	5.00 U	0.31 U	0.56 J	0.31 J	5.00 U	4.90	0.25 J	0.14 U
021442	INEL	Solidified Inorganics	211	1	17.00 U	0.41 U	0.75 U	0.69 J	17.00 U	5.30	0.45 J	0.47 U
021488	RFETS	Inorganic Non-metal	218	442	5.00 U	0.07 U	0.22 J	0.07 U	5.00 U	0.20 J	0.06 U	0.03 U
021503	RFETS	Inorganic Non-metal	218	440	5.00 U	0.31 U	0.20 U	0.29 U	5.00 U	0.27 U	0.24 U	0.14 U
021511	RFETS	Solidified Inorganics	213	4	54.00 J	0.08 U	0.05 U	0.08 U	5.00 U	0.10 J	0.06 U	0.04 U
021512	INEL	Solidified Inorganics	211	7	17.00 U	1.80 U	1.10 U	1.60 U	17.00 U	3.90 J	1.40 U	0.82 U
021523	INEL	Solidified Organics	226	432	17.00 U	1.10 U	0.99 J	9.80	17.00 U	2.60	2.40	0.52 U
021565	INEL	Solidified Inorganics	211	7	17.00 U	0.73 U	1.30 U	2.20	17.00 U	31.00	2.60 U	0.84 U
021572	INEL	Solidified Inorganics	211	7	17.00 U	0.38 U	0.70 U	1.30	17.00 U	16.00	1.40 U	0.44 U
021600	RFETS	Solidified Inorganics	211	1	5.00 U	0.53 U	0.48 J	0.48 U	5.00 U	0.51 J	0.40 U	0.24
021631	INEL	Inorganic Non-metal	218	442	21.00 J	0.06 U	0.07 J	0.05 U	17.00 U	0.04 U	1.20	0.03 U
021698	INEL	Inorganic Non-metal	218	440	17.00 U	2.10 U	1.30 U	1.90 U	17.00 U	1.50 U	1.60 U	0.97 U
021699	INEL	Solidified Inorganics	213	4	2600.0	0.62 U	0.39 U	0.57 U	68.00 U	0.43 U	0.46 U	0.28 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

rum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
021700	RFETS	Solidified Inorganics	213	4	5.00 U	0.02 U	0.01 J	0.02 U	5.00 U	0.02 J	0.01 U	0.01 U
021806	INEL	Inorganic Non-metal	218	440	17.00 U	0.17 U	0.31 U	0.21 U	17.00 U	0.27 U	0.30 U	0.20 U
021816	INEL	Solidified Inorganics	211	1	42.00 J	0.09 U	0.16 U	1.20	17.00 U	3.70	0.27 J	0.10 U
021865	INEL	Solidified Inorganics	211	1	17.00 U	1.80 U	1.10 U	1.60 U	17.00 U	4.80 J	1.40 U	0.82 U
021993	INEL	Solidified Inorganics	211	2	17.00 U	0.84 U	0.53 U	0.77 U	17.00 U	4.10 J	0.64 J	0.39 U
022000	INEL	Inorganic Non-metal	218	440	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.13 U	0.55 U	0.09 U
022036	INEL	Uncategorized Metal	217	480	17.00 U	0.06 U	0.14 J	0.08 U	17.00 U	0.10 U	0.14 U	0.07 U
022038	RFETS	Uncategorized Metal	217	481	11.00 J	0.35 U	4.00	0.66 J	28.00 J	0.30 U	1.30 J	0.52 J
022052	INEL	Uncategorized Metal	217	481	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	0.02 J	0.54 J	0.02 U
022102	INEL	Solidified Organics	226	432	17.00 U	0.19 U	0.12 U	2.00	17.00 U	0.13 U	3.90	0.09 U
022105	INEL	Solidified Inorganics	211	1	17.00 U	0.79 U	0.50 U	0.72 U	17.00 U	0.55 U	0.59 U	0.36 U
022119	INEL	Inorganic Non-metal	222	371	17.00 U	1.00 U	0.64 U	0.93 U	17.00 U	7.70	0.88 U	0.46 U
022121	INEL	Solidified Inorganics	211	7	17.00 U	0.13 U	19.00	0.33 J	15.00 U	9.00	0.66 J	0.15 U
022135	INEL	Solidified Inorganics	211	7	17.00 U	1.30 U	46.00	1.20 U	17.00 U	24.00	0.97 U	0.59 U
022136	RFETS	Solidified Inorganics	211	7	5.00 U	1.60 U	4.10 J	1.50 J	5.00 U	11.00	1.20 U	0.76 U
022149	RFETS	Solidified Inorganics	211	7	5.00 U	0.41 U	1.10 J	0.38 U	5.00 U	1.90 J	6.70	0.19 U
022224	INEL	Solidified Inorganics	211	1	17.00 U	0.79 U	0.50 U	2.50 J	17.00 U	4.80	1.30 J	1.90 J
022226	RFETS	Inorganic Non-metal	222	371	14.00 J	2.20 U	1.40 U	2.00 U	11.00 J	2.30 JD	1.60 U	1.00 U
022228	INEL	Inorganic Non-metal	222	371	17.00 U	0.28 U	0.18 U	0.26 U	18.00 U	3.20	0.10 U	0.13 U
022230	INEL	Inorganic Non-metal	222	371	17.00 U	0.22 U	0.14 U	0.21 U	17.00 U	4.80	0.17 U	0.10 U
022249	INEL	Uncategorized Metal	217	480	17.00 U	1.50 U	2.70 U	1.80 U	17.00 U	2.30 U	3.30 U	1.70 U
022275	INEL	Uncategorized Metal	217	480	64.00 J	0.33 U	0.61 U	0.58 J	17.00 U	12.00	0.88 U	0.38 U
022286	RFETS	Uncategorized Metal	217	480	65.00 J	0.94 U	0.60 U	0.87 U	8.90 J	8.60	0.71 U	0.43 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
022296	INEL	Solidified Inorganics	211	1	17.00 U	0.72 U	1.30 U	2.00	17.00 U	8.20	0.14 U	0.84 U
022306	INEL	Inorganic Non-metal	218	440	17.00 U	1.70 U	1.10 U	1.60 U	15.00 U	1.20	0.56 U	0.77 U
022338	INEL	Solidified Organics	212	3	17.00 U	220.00 U	5500.0	210.00 U	27.00 J	160 00 U	170.00 U	100.00 U
022347	INEL	Inorganic Non-metal	218	440	17.00 U	0.22 U	0.42 U	0.34 J	17.00 U	1.70	0.27 U	0.26 U
022358	INEL	Uncategorized Metal	217	480	17.00 U	0.02 U	0.07 J	0.24 J	17.00 U	0.02 U	0.08 J	0.02 U
022416	RFETS	Uncategorized Metal	217	320	12.00 J	0.10 U	0.10 JB	0.09 U	8.20 J	0.78	0.07 U	0.05 U
022434	INEL	Solidified Organics	226	432	17.00 U	0.73 U	0.46 U	3.70	17.00 U	0.51 U	7.60	0.34 U
022442	INEL	Solidified Organics	226	432	17.00 U	2.15 U	1.36 U	19.00	17.00 U	2.00 U	9.00 J	0.99 U
022450	RFETS	Uncategorized Metal	217	320	5.00 U	0.17 U	0.10 U	0.15 U	5.00 U	1.60	0.12 U	0.08 U
022453	RFETS	Solidified Inorganics	211	2	5.00 U	0.15 U	0.17 J	0.91	5.00 U	0.13 U	0.11 U	0.07 U
022486	RFETS	Inorganic Non-metal	218	440	5.00 U	3.30 U	2.10 U	3.10 U	11.00 J	2.90 U	2.50 U	1.50 U
022511	INEL	Uncategorized Metal	217	480	17.00 U	1.70 U	1.10 U	1.60 U	18.00 U	2.20	0.35 U	0.80 U
022513	INEL	Solidified Organics	212	1	17.00 U	0.51 U	0.32 U	0.49 J	17.00 U	1.10 J	0.38 U	0.23 U
022517	INEL	Solidified Organics	226	432	17.00 U	0.22 U	0.14 U	2.60	17.00 U	0.15 U	2.30 J	0.10 U
022539	INEL	Solidified Organics	226	432	17.00 U	0.22 U	0.14 U	1.60	17.00 U	0.15 U	1.60	0.10 U
022549	INEL	Uncategorized Metal	217	480	17.00 U	2.80 U	1.80 U	2.60 U	18.00 U	2.00 U	0.34 U	1.30 U
022552	INEL	Inorganic Non-metal	218	442	17.00 U	0.65 U	0.41 U	0.59 U	17.00 U	6.40	1.90 U	0.30 U
022557	INEL	Uncategorized Metal	217	480	17.00 U	0.51 U	0.95 U	0.65 U	17.00 U	3.70	0.02 U	0.60 U
022595	INEL	Solidified Inorganics	211	1	17.00 U	0.25 U	0.46 U	0.31 U	15.00 U	7.00	0.48 U	0.29 U
022600	RFETS	Solidified Inorganics	213	4	3800.0 D	0.52 U	0.33 U	2.10 J	130.00 U	0.45 U	0.69 J	0.24 U
022780	INEL	Solidified Inorganics	211	7	17.00 U	0.36 U	12.00	0.96 J	18.00 U	30.00	0.53 U	0.42 U
022789	INEL	Solidified Inorganics	211	7	17.00 U	1.20 U	6.00	1.10 U	17.00 U	19.00	0.93 U	0.57 U
022790	INEL	Solidified Inorganics	214	292	17.00 U	0.17 U	0.32 U	0.22 U	18.00 U	1.90	0.22 U	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
022803	INEL	Inorganic Non-metal	222	371	17.00 U	1.20 U	0.75 U	1.10 U	15.00 U	3.80 J	1.00 U	0.54 U
022807	INEL	Salt Waste	224	414	17.00 U	0.23 U	0.15 U	0.27 J	17.00 U	0.81 J	0.18 U	0.11 U
022811	INEL	Solidified Inorganics	211	7	17.00 U	0.30 U	19.00	0.65 J	17.00 U	20.00	0.32 U	0.35 U
022833	INEL	Solidified Inorganics	211	7	17.00 U	2.20 U	38.00	3.70	15.00 U	120.00	0.74 U	2.50 U
022841	INEL	Solidified Inorganics	211	7	17.00 U	1.20 U	5.20	2.80	17.00 U	84.00	0.04 U	1.40 U
022850	INEL	Solidified Inorganics	211	7	17.00 U	0.72 U	47.00	1.80	17.00 U	41.00	0.14 U	0.84 U
022874	INEL	Inorganic Non-metal	222	371	17.00 U	0.40 U	0.25 U	0.36 U	17.00 U	5.00	0.38 U	0.18 U
022894	INEL	Solidified Inorganics	211	1	17.00 U	0.10 U	0.29 J	0.34 J	15.00 U	3.50	0.19 U	0.12 U
022923	INEL	Inorganic Non-metal	218	440	17.00 U	0.73 U	0.46 U	0.67 U	17.00 U	0.61 J	0.05 U	0.34 U
023005	INEL	Solidified Inorganics	211	7	17.00 U	0.34 U	9.30	0.31 U	17.00 U	4.00	0.25 U	0.16 U
023027	RFETS	Uncategorized Metal	217	480	5.00 U	0.33 U	0.21 U	0.30 U	5.00 U	0.29 U	0.25 U	0.15 U
023041	RFETS	Inorganic Non-metal	222	371	13.00 J	0.54 U	0.34 U	0.49 U	10.00 J	1.10 J	0.40 U	0.25 U
023046	RFETS	Solidified Inorganics	211	7	5.00 U	0.95 U	6.50	0.87 U	5.90 J	10.00	0.71 U	0.43 U
023048	RFETS	Solidified Organics	226	432	17.00 U	0.79 U	0.50 U	12.00	17.00 U	0.55 U	1.90	0.36 U
023062	INEL	Solidified Inorganics	211	7	17.00 U	0.34 U	2.50	0.31 U	17.00 U	4.90	0.25 U	0.16 U
023211	INEL	Filter	119	376	17.00 U	0.11 U	0.09 J	0.10 U	17.00 U	0.34 J	0.08 U	0.05 U
023212	RFETS	Uncategorized Metal	217	480	5.00 U	1.10 U	0.70 U	3.20 J	9.20 J	5.20 J	1.30 J	0.51 U
023227	INEL	Uncategorized Metal	217	480	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.25 J	0.50 U	0.09 U
023229	INEL	Combustible	216	337	17.00 U	1.10 U	0.71 U	1.00 U	17.00 U	0.78 U	0.84 U	0.52 U
023235	RFETS	Heterogeneous	216	336	95.00 J	0.30 U	0.19 U	0.27 U	23.00 J	4.30	0.66 J	0.14 U
023238	INEL	Solidified Inorganics	211	1	17.00 U	0.16 U	0.62 J	0.75 J	17.00 U	4.50	4.10	0.18 U
023277	INEL	Inorganic Non-metal	222	371	17.00 U	2.00 U	1.20 U	1.80 U	17.00 U	9.20 J	1.50 U	0.90 U
023285	INEL	Solidified Inorganics	211	7	17.00 U	3.80 U	3.40 J	4.10 J	17.00 U	27.00	5.00 J	1.70 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
023312	INEL	Uncategorized Metal	217	480	17.00 U	0.73 U	1.40 U	1.80	17.00 U	5.80	0.35 J	0.84 U
023341	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	1.40 E	0.05 J	5.00 U	0.94	0.02 J	0.01 U
023357	INEL	Solidified Inorganics	211	1	17.00 U	0.28 U	0.18 U	0.89 J	17.00 U	0.72 J	1.30 J	0.13 U
023383	RFETS	Uncategorized Metal	217	481	5.00 U	0.02 U	0.06 J	0.02 U	5.00 U	0.07 J	0.02 J	0.01 U
023384	INEL	Combustible	223	339	15.00 U	0.09 U	0.15 U	0.11 U	15.00 U	14.00	2.20 U	0.08 U
023388	INEL	Heterogeneous	216	330	18.00 U	0.08 U	0.12 U	0.12 J	15.00 U	1.30	1.30 U	0.07 U
023392	INEL	Solidified Inorganics	213	4	1000.0	1.30 U	0.80 U	2.60 J	43.00 U	0.88 U	3.00 J	0.58 U
023407	INEL	Solidified Organics	212	3	17.00 U	44.00 U	28.00 U	40.00 U	17.00 U	31.00 U	33.00 U	20.00 U
023460	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 U	0.06 J	0.05 U	23.00 J	0.88 J	0.66 J	0.03 U
023469	INEL	Solidified Organics	212	3	17.00 U	0.67 U	45.00	4.60	17.00 U	22.00	2.10 J	0.31 U
023492	INEL	Solidified Inorganics	211	7	17.00 U	1.40 U	1.20 J	1.30 U	17.00 U	7.10 J	1.00 U	0.64 U
023519	INEL	Solidified Organics	212	3	17.00 U	2.80 U	49.00	3.50 U	17.00 U	44.00	0.44 J	3.20 U
023535	INEL	Solidified Inorganics	211	7	17.00 U	0.72 U	1.60	1.70	15.00 U	30.00	3.90	0.84 U
023552	INEL	Solidified Inorganics	211	1	17.00 U	1.60 U	1.00 U	1.40 U	17.00 U	9.40 J	1.20 U	0.72 U
023662	INEL	Inorganic Non-metal	218	442	17.00 U	0.19 U	0.12 U	0.17 U	2.40 U	1.30	0.55 J	0.09 U
023681	INEL	Solidified Inorganics	211	1	36.00 J	0.67 U	0.43 U	0.63 J	17.00 U	0.47 U	0.93 J	0.31 U
023695	RFETS	Solidified Inorganics	211	2	5.00 U	0.35 U	0.39 J	0.32 U	5.00 U	2.50	0.29 J	0.16 U
023771	RFETS	Heterogeneous	216	330	12.00 J	0.36 U	0.23 U	0.33 U	35.00 J	8.00	4.70	0.17 U
023776	INEL	Heterogeneous	216	330	15.00 U	0.74 U	0.47 U	0.68 U	51.00 J	2.50	0.77 J	0.34 U
023805	INEL	Uncategorized Metal	217	480	17.00 U	0.01 U	0.07 J	0.02 U	17.00 U	1.10	0.17 U	0.02 U
023827	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 U	0.03 J	0.02 U	5.00 U	0.61	0.03 J	0.01 U
023840	INEL	Combustible	216	337	150.00	0.29 U	0.46 U	0.42 J	17.00 U	5.20	0.81 J	0.24 U
023901	INEL	Heterogeneous	216	330	18.00 U	0.28 U	0.44 U	2.70	27.00 J	0.26 U	0.16 U	0.23 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
023929	RFETS	Inorganic Non-metal	218	440	5.00 U	1.10 U	0.71 U	1.00 U	5.00 U	0.98 U	0.84 U	0.51 U
023959	INEL	Uncategorized Metal	217	480	17.00 U	2.50 U	1.60 U	2.30 U	17.00 U	14.00	0.05 J	1.20 U
024028	RFETS	Inorganic Non-metal	218	440	5.00 U	0.23 U	0.15 U	0.22 U	5.00 U	1.00 J	0.18 U	0.11 U
024029	INEL	Uncategorized Metal	217	480	17.00 U	0.02 U	0.03 U	0.02 U	18.00 J	0.02 U	0.37 J	0.02 U
024058	INEL	Solidified Inorganics	211	1	17.00 U	0.84 U	0.53 U	0.77 U	17.00 U	0.59 U	0.63 U	0.39 U
024059	INEL	Solidified Inorganics	214	292	17.00 U	0.34 U	0.21 U	0.31 U	17.00 U	0.25 J	0.25 U	0.16 U
024088	INEL	Combustible	216	337	15.00 U	0.64 U	0.41 U	0.59 U	15.00 J	1.30	11.00 U	0.30 U
024090	INEL	Combustible	216	337	55.00 J	0.44 U	0.69 U	0.50 U	17.00 U	2.10	0.02 U	0.37 U
024092	INEL	Combustible	216	337	17.00 U	2.80 U	1.90	2.60 U	17.00 U	4.10	0.05 J	1.30 U
024095	INEL	Combustible	216	337	18.00 U	0.18 U	0.29 U	0.21 U	17.00 U	0.17 U	0.02 U	0.15 U
024102	INEL	Combustible	216	337	120.00	0.96 U	0.61 U	0.88 U	17.00 U	0.67 U	0.10 J	0.44 U
024106	INEL	Combustible	216	337	360.00	1.40 U	1.50	1.30 U	17.00 U	0.98 U	0.04 U	0.64 U
024113	INEL	Combustible	216	337	140.00	0.42 U	0.27 U	0.39 U	17.00 U	0.29 U	0.02 U	0.19 U
024147	INEL	Solidified Inorganics	211	1	17.00 U	1.30 U	0.82 U	1.20 U	17.00 U	2.40 J	0.97 U	0.59 U
024165	INEL	Combustible	216	337	230.00	0.99 U	0.63 U	0.91 U	17.00 U	2.30	2.10 U	0.46 U
024168	INEL	Heterogeneous	216	330	17.00 U	0.06 U	0.04 U	0.05 U	17.00 U	0.04 U	0.10 J	0.03 U
024185	INEL	Salt Waste	224	409	17.00 U	0.06 U	0.09 J	0.10 J	17.00 U	0.21 J	0.05 U	0.03 U
024254	INEL	Salt Waste	224	414	17.00 U	0.09 U	0.06 U	0.09 U	17.00 U	0.07 U	0.07 U	0.04 U
024271	INEL	Inorganic Non-metal	218	442	17.00 U	0.19 U	0.12 U	0.17 U	17.00 U	0.55 J	2.80 U	0.09 U
024273	INEL	Inorganic Non-metal	218	442	17.00 U	0.36 U	0.23 U	0.34 U	17.00 U	0.26	0.27 U	0.17 U
024289	RFETS	Inorganic Non-metal	218	440	5.20 J	0.66 U	0.69 J	0.61 U	5.30 J	0.67 J	0.50 U	0.30 U
024295	INEL	Salt Waste	224	414	17.00 U	0.19 U	0.12 U	1.00 J	17.00 U	0.13 U	0.14 U	0.09 U
024308	INEL	Solidified Inorganics	211	2	17.00 U	0.28 U	0.18 U	0.26 U	17.00 U	0.20 U	0.21 U	0.13 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
024309	INEL	Solidified Inorganics	211	2	17.00 U	0.23 U	0.14 U	0.41 J	17.00 U	0.16 U	0.17 U	0.10 U
024311	INEL	Solidified Inorganics	211	2	41.00 U	0.46 U	0.29 U	0.42 U	41.00 U	0.32 U	0.34 U	0.21 U
024318	INEL	Solidified Inorganics	211	2	17.00 U	0.45 U	0.28 U	0.41 U	17.00 U	0.31 U	0.34 U	0.21 U
024506	INEL	Inorganic Non-metal	122	374	17.00 U	0.11 U	0.07 U	0.10 U	17.00 U	0.10 U	0.08 U	0.05 U
024507	INEL	Uncategorized Metal	117	480	17.00 U	0.19 J	0.09 U	0.13 U	17.00 U	0.20 J	0.10 U	0.06 U
024600	INEL	Uncategorized Metal	217	480	17.00 U	0.51 U	0.32 U	0.46 U	18.00 J	0.35 U	2.40 U	0.23 U
024638	INEL	Heterogeneous	216	330	15.00 U	0.25 U	0.16 U	0.23 U	17.00 U	0.17 U	0.04 U	0.11 U
024670	INEL	Solidified Inorganics	211	1	17.00 U	1.00 U	0.64 U	0.93 U	17.00 U	3.10 J	0.76 U	0.46 U
024765	INEL	Uncategorized Metal	217	480	17.00 U	0.05 U	0.07 U	0.11 J	17.00 U	1.30	0.63 U	0.04 U
024786	INEL	Uncategorized Metal	217	480	17.00 U	0.68 U	0.43 U	0.62 U	17.00 U	5.60	0.13 J	0.31 U
024850	INEL	Solidified Organics	226	432	17.00 U	0.19 U	0.12 BJ	0.98 J	17.00 U	0.13 U	7.10	0.09 U
024884	INEL	Uncategorized Metal	217	480	17.00 U	0.45 U	0.28 U	0.41 U	17.00 U	0.31 U	0.34 U	0.21 U
024897	INEL	Solidified Inorganics	211	1	17.00 U	0.45 U	0.28 U	0.41 U	17.00 U	0.31 U	0.34 U	0.21 U
024920	INEL	Solidified Inorganics	211	1	17.00 U	1.30 U	0.82 U	1.20 U	17.00 U	0.90 U	0.97 U	0.59 U
024991	INEL	Solidified Inorganics	211	1	17.00 U	0.62 U	0.39 U	0.57 U	17.00 U	0.43 U	0.46 U	0.28 U
025001	INEL	Solidified Organics	212	3	17.00 U	2.20 U	1.40 U	2.10 U	17.00 U	1.60 U	1.70 J	1.00 U
032284	INEL	Combustible	223	339	17.00 U	0.30 U	0.46 U	0.53 J	17.00 U	46.00	4.20 U	0.25 U
032287	RFETS	Solidified Inorganics	211	7	5.00 U	2.20 U	8.20 JB	2.00 U	6.00 J	29.00	1.60 U	1.00 U
032467	INEL	Combustible	216	337	17.00 U	0.45 U	0.28 U	0.41 U	59.00 J	0.31 U	58.00 J	0.21 U
032469	RFETS	Combustible	216	337	5.00 U	0.73 U	2.10 JB	0.67 U	5.00 U	0.64 U	0.55 U	0.34 U
032473	INEL	Combustible	216	337	15.00 U	3.00 U	1.90 U	2.80 U	17.00 U	19.00	0.06 U	1.40 U
032485	INEL	Combustible	216	337	72.00 J	1.80 U	2.20	1.60 U	17.00 U	1.40	1.90 U	0.80 U
032517	RFETS	Combustible	223	339	5.00 U	0.16 U	0.10 U	0.15 U	18.00 J	8.40	0.53 J	0.08 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
032521	INEL	Combustible	223	339	17.00 U	0.07 U	0.10 U	0.07 U	17.00 U	17.00	0.88 U	0.05 U
032525	INEL	Combustible	223	339	17.00 U	0.04 U	0.24 J	0.05 J	17.00 U	12.00	0.50 U	0.03 U
032526	INEL	Combustible	223	339	15.00 U	0.55 U	1.20	0.62 U	17.00 U	24.00	0.10 U	0.46 U
032529	INEL	Heterogeneous	216	336	11.00 U	1.80 U	0.32 U	1.00 U	17.00 U	55.00 B	0.07 U	0.18 U
032540	INEL	Uncategorized Metal	217	480	18.00 J	0.73 U	0.46 U	1.10	17.00 U	19.00	0.84 U	0.34 U
032632	INEL	Uncategorized Metal	217	480	17.00 U	0.14 U	0.22 U	0.39 J	17.00 U	3.40	1.30 U	0.12 U
032659	RFETS	Uncategorized Metal	217	480	5.00 U	0.58 U	0.37 U	0.53 U	9.50 J	6.40	0.43 U	0.26 U
032669	RFETS	Uncategorized Metal	217	480	7.60 J	0.63 U	0.40 U	0.58 U	18.00 J	2.30 J	0.47 U	0.29 U
032712	INEL	Uncategorized Metal	217	480	17.00 U	0.54 U	0.34 U	0.49 U	17.00 U	0.55 J	0.06 J	0.25 U
032715	RFETS	Combustible	216	337	5.00 U	0.17 U	0.28 JB	0.15 U	5.00 U	0.15 J	0.13 U	0.08 U
032748	INEL	Combustible	223	339	11.00 U	1.80 U	0.32 U	1.00 U	17.00 U	36.00 B	0.72 U	0.18 U
032753	INEL	Uncategorized Metal	217	481	17.00 U	0.06 U	0.04 J	0.05 U	17.00 U	0.04 U	0.04 U	0.03 U
033091	INEL	Combustible	223	339	17.00 U	0.02 U	0.03 U	0.02 U	17.00 U	1.60	26.00	0.02 U
D01332	RFETS	Heterogeneous	116	832	31.27 J	1.00 U	0.50 U	0.50 U	16.95 J	0.50 U	0.50 U	0.50 U
D06288	RFETS	Filter	119	338	1.30 U	0.20 U	0.10 U	0.10 U	0.56 J	0.10 U	0.10 U	0.10 U
D06339	RFETS	Heterogeneous	0	337	32.49 J	0.40 U	0.20 U	0.20 U	144.65 J	3.84	0.27 J	0.20 U
D11129	RFETS	Filter	119	338	5.87 J	0.20 U	0.10 U	0.10 U	2.76 J	0.29 J	0.10 U	0.10 U
D13364	RFETS	Uncategorized Metal	117	480	37.92 J	0.10 U	0.10 U	0.10 U	46.78 J	3.15	0.33 J	0.10 U
D15680	RFETS	Heterogeneous	116	831	866.66 U	133.33 U	66.67 U	66.67 U	333.33 U	66.67 U	66.67 U	66.67 U
D17184	RFETS	Solidified Inorganics	111	800	1.90 U	0.10 U	0.45 J	0.12 J	1.20 U	0.26 J	0.10 U	0.10 U
D32439	RFETS	Filter	119	338	5.96 J	0.20 U	0.10 U	0.10 U	4.57 J	1.19	0.10 U	0.10 U
D32978	RFETS	Solidified Inorganics	111	803	73.67 U	11.33 U	73.26	19.57 J	28.34 U	161.84	7.44 J	5.67 U
D35301	RFETS	Solidified Inorganics	111	800	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-* ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D35306	RFETS	Lead/Cadmium Metal Waste	123	339	22.26 J	0.40 U	0.20 U	0.20 U	92.37 J	22.22	1.17 J	0.20 U
D36606	RFETS	Uncategorized Metal	117	480	9.44 J	0.80 U	0.40 U	0.40 U	2.00 U	0.40 U	0.40 U	0.40 U
D38859	RFETS	Solidified Inorganics	111	803	2.74 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D38989	RFETS	Heterogeneous	0	336	1.69 J	0.20 U	0.10 U	0.10 U	17.99 J	1.18	0.19 J	0.10 U
D41681	RFETS	Filter	119	338	52.16 J	0.20 U	0.10 U	0.10 U	35.93 J	2.22	0.13 J	0.10 U
D42280	RFETS	Solidified Organics	112	801	5416.6 U	833.33 U	1682.9 J	416.67 U	2083.3 U	416.67 U	416.67 U	416.67 U
D47501	RFETS	Lead/Cadmium Metal Waste	0	341	11.85 J	0.20 U	0.10 U	0.10 U	31.67 J	0.52 J	0.10 U	0.10 U
D48182	RFETS	Filter	119	376	50.37 J	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U
D48200	RFETS	Heterogeneous	116	831	152.00 U	8.00 U	8.00 U	8.00 U	96.00 U	8.00 U	8.00 U	8.00 U
D48377	RFETS	Inorganic Non-metal	118	368	1.90 U	0.10 U	0.10 U	0.10 U	4.95 J	0.12 J	0.10 U	0.10 U
D49662	RFETS	Solidified Inorganics	0	292	1.38 J	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D49880	RFETS	Heterogeneous	0	336	3.47 U	0.53 U	0.27 U	0.27 U	22.48 J	3.36	0.66 J	0.27 U
D52318	RFETS	Lead/Cadmium Metal Waste	117	321	5.08 J	0.20 U	0.10 U	0.10 U	3.15 J	0.10 U	0.10 U	0.10 U
D52362	RFETS	Heterogeneous	116	821	7.99 J	0.20 U	0.20 U	0.20 U	2.40 U	0.23 J	0.20 U	0.20 U
D52726	RFETS	Heterogeneous	116	833	10.40 U	1.60 U	0.80 U	0.80 U	4.00 U	0.80 U	0.80 U	0.80 U
D53672	RFETS	Inorganic Non-metal	118	440	147.84 J	0.20 U	0.21 J	0.20 U	7.22 J	0.20 U	0.20 U	0.20 U
D55656	RFETS	Heterogeneous	116	831	5.70 U	0.30 U	0.34 J	0.30 U	6.81 J	0.30 U	0.30 U	0.30 U
D55680	RFETS	Heterogeneous	116	821	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D55938	RFETS	Heterogeneous	116	831	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D56095	RFETS	Heterogeneous	0	337	10.20 J	0.20 U	0.10 U	0.10 U	0.59 J	0.10 U	0.10 U	0.10 U
D56595	RFETS	Heterogeneous	116	831	173.33 U	26.67 U	798.33	13.33 U	66.67 U	13.33 U	13.33 U	13.33 U
D56755	RFETS	Heterogeneous	116	821	1.90 U	0.10 U	0.16 J	0.10 U	1.20 U	0.32 J	0.10 U	0.10 U
D56823	RFETS	Heterogeneous	116	831	29.77 J	0.40 U	0.40 J	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D57179	RFETS	Heterogeneous	0	330	27.22 J	4.00 U	35.83	4.85 J	10.00 U	2.00 U	2.00 U	2.00 U
D57522	RFETS	Heterogeneous	0	336	292.23 J	0.80 U	0.40 U	0.40 U	61.39 J	0.40 U	0.40 U	0.40 U
D57847	RFETS	Uncategorized Metal	117	480	18.12 J	0.80 U	0.65 J	0.40 U	7.25 J	0.40 U	0.40 U	0.40 U
D58143	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.65 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D58154	RFETS	Heterogeneous	116	831	33.35 J	0.80 U	0.40 U	0.40 U	19.22 J	1.10 J	0.40 U	0.40 U
D58627	RFETS	Heterogeneous	116	831	9.82 J	0.40 U	0.20 U	0.20 U	1.00 U	0.47 J	0.20 U	0.20 U
D58889	RFETS	Heterogeneous	116	831	2.60 U	0.40 U	0.20 U	0.20 U	1.00 U	0.20 U	0.20 U	0.20 U
D58970	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.79 J	0.10 U	1.20 U	0.16 J	0.10 U	0.10 U
D59053	RFETS	Lead/Cadmium Metal Waste	0	341	4.44 J	0.20 U	0.10 U	0.10 U	32.29 J	5.31	0.45 J	0.10 U
D59703	RFETS	Heterogeneous	116	831	13.44 J	1.00 U	0.50 U	0.50 U	15.55 J	1.67 J	0.50 U	0.50 U
D59899	RFETS	Filter	0	331	18.73 Ja	1.00 U	0.50 U	0.50 U	844.03 J	0.50 U	0.50 U	0.50 U
D60056	RFETS	Lead/Cadmium Metal Waste	0	341	23.41 J	0.53 U	0.27 U	0.27 U	118.24 J	13.76	0.96 J	0.27 U
D60218	RFETS	Heterogeneous	116	821	26.43 J	0.20 U	0.20 U	0.20 U	35.91 J	0.20 U	0.20 U	0.20 U
D60298	RFETS	Solidified Organics	112	801	10893 U	573.33 U	605.44 J	573.33 U	6880.0 U	573.33 U	573.33 U	573.33 U
D60320	RFETS	Heterogeneous	0	330	364.00 U	56.00 U	28.70 J	28.00 U	144.48 J	28.00 U	28.00 U	28.00 U
D60463	RFETS	Inorganic Non-metal	118	440	9.15 J	0.10 U	0.29 J	0.10 U	2.58 J	0.18 J	0.10 U	0.10 U
D60511	RFETS	Filter	119	491	194.76 J	0.20 U	0.20 U	0.20 U	11.29 J	0.20 U	0.20 U	0.20 U
D60635	RFETS	Filter	119	491	12.71 J	0.10 U	0.10 U	0.10 U	1.28 J	0.18 J	0.10 U	0.10 U
D61245	RFETS	Heterogeneous	0	336	93.88 J	0.93 U	1.08 J	0.47 U	143.48 J	1.12 J	0.47 U	0.47 U
D61278	RFETS	Heterogeneous	0	336	110.62 J	0.53 U	0.27 U	0.27 U	45.34 J	22.83	1.16 J	0.27 U
D61473	RFETS	Heterogeneous	0	377	79.38 J	0.30 U	0.30 U	0.30 U	2.60 U	0.33 J	0.30 U	0.30 U
D61504	RFETS	Lead/Cadmium Metal Waste	0	341	27.30 J	0.20 U	0.10 U	0.10 U	87.45 J	9.88	0.57 J	0.10 U
D61747	RFETS	Heterogeneous	0	330	21.66 J	0.53 U	0.27 U	0.27 U	30.03 J	1.43 J	0.27 U	0.27 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D62340	RFETS	Heterogeneous	116	821	7.60 U	0.40 U	0.40 U	0.40 U	6.66 J	0.43 J	0.40 U	0.40 U
D62478	RFETS	Filter	119	376	77.31 J	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U
D62714	RFETS	Heterogeneous	116	831	13.00 U	2.00 U	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U
D62851	RFETS	Heterogeneous	116	825	10.44 J	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D62855	RFETS	Heterogeneous	116	821	114.00 U	6.00 U	6.00 U	6.00 U	72.00 U	6.00 U	6.00 U	6.00 U
D63098	RFETS	Filter	0	331	16.50 Ja	1.00 U	3.08 J	0.50 U	715.70 J	0.50 U	0.50 U	0.50 U
D63229	RFETS	Heterogeneous	116	831	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D63281	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.15 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D63460	RFETS	Heterogeneous	116	831	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	2.64	0.10 J	0.10 U
D63654	RFETS	Solidified Inorganics	111	807	2.95 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D63808	RFETS	Heterogeneous	116	831	43.27 J	0.80 U	0.80 U	0.80 U	9.60 U	0.80 U	0.80 U	0.80 U
D63817	RFETS	Heterogeneous	116	821	30.40 U	1.60 U	1.60 U	1.60 U	19.20 U	202.29	1.60 U	1.60 U
D63819	RFETS	Solidified Inorganics	111	807	3.80 U	0.20 U	0.58 J	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D63999	RFETS	Filter	119	491	245.84 J	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D64004	RFETS	Filter	0	331	185.61 Ja	0.80 U	0.40 U	0.40 U	409.36 J	0.40 U	0.40 U	0.40 U
D64137	RFETS	Filter	119	335	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D64448	RFETS	Heterogeneous	116	821	2090.0 U	110.00 U	110.00 U	110.00 U	1320.0 U	110.00 U	110.00 U	110.00 U
D64555	RFETS	Solidified Organics	112	801	10893 U	573.33 U	573.33 U	573.33 U	6880.0 U	573.33 U	573.33 U	573.33 U
D64632	RFETS	Solidified Inorganics	111	800	2.58 J	0.10 U	0.23 J	0.12 J	1.20 U	0.32 J	0.10 U	0.10 U
D64752	RFETS	Uncategorized Metal	117	480	26.00 U	4.00 U	2.00 U	2.68 J	10.00 U	2.00 U	2.00 U	2.00 U
D64758	RFETS	Heterogeneous	116	831	20.93 J	1.00 U	0.71 J	0.50 U	13.05 J	0.59 J	0.50 U	0.50 U
D64860	RFETS	Heterogeneous	116	831	156.00 U	24.00 U	12.00 U	12.00 U	60.00 U	12.00 U	12.00 U	12.00 U
D65212	RFETS	Heterogeneous	116	831	117.00 U	18.00 U	88.80 J	330.62	45.00 U	9.00 U	9.00 U	9.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D65213	RFETS	Heterogeneous	116	831	104.00 U	16.00 U	8.00 U	8.00 U	40.00 U	70.37 J	8.00 U	8.00 U
D65214	RFETS	Heterogeneous	116	831	1399.6 U	73.67 U	73.67 U	73.67 U	884.00 U	73.67 U	73.67 U	73.67 U
D65530	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.89 J	0.13 J	1.20 U	0.10 J	0.10 U	0.10 U
D65535	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.33 J	0.41 J	1.20 U	0.10 U	0.10 U	0.10 U
D65546	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	0.33 J	0.37 J	1.20 U	0.10 U	0.10 U	0.10 U
D65600	RFETS	Solidified Inorganics	111	807	1.90 U	0.10 U	1.25	1.02	1.20 U	0.10 J	0.12 J	0.10 U
D65731	RFETS	Inorganic Non-metal	122	375	12.20 J	0.40 U	1.81 J	0.40 U	5.01 J	0.62 J	0.40 U	0.40 U
D65734	RFETS	Uncategorized Metal	117	480	33.76 J	0.70 U	0.70 U	0.70 U	30.96 J	89.04	0.70 U	0.70 U
D65754	RFETS	Heterogeneous	116	831	10.46 J	1.33 U	3.60 J	0.67 U	106.20 J	0.67 U	0.67 U	0.67 U
D65757	RFETS	Heterogeneous	116	831	39.00 U	6.00 U	3.00 U	3.00 U	15.00 U	3.00 U	3.00 U	3.00 U
D65972	RFETS	Filter	119	376	18.35 J	0.30 U	0.30 J	0.30 U	3.60 U	0.50 J	0.30 U	0.30 U
D66128	RFETS	Heterogeneous	116	831	24.20 J	1.00 U	3.03 J	0.50 U	2.87 J	0.50 U	0.50 U	0.50 U
D66157	RFETS	Uncategorized Metal	117	480	29.29 J	4.00 U	2.00 U	2.00 U	56.91 J	2.00 U	2.00 U	2.00 U
D66162	RFETS	Lead/Cadmium Metal Waste	123	339	1710.0 U	90.00 U	90.00 U	113.67 J	1080.0 U	90.00 U	90.00 U	90.00 U
D66211	RFETS	Heterogeneous	116	833	19.95 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D66213	RFETS	Heterogeneous	116	831	7.49 J	0.60 U	2.63 J	8.85	5.57 J	0.30 U	0.30 U	0.30 U
D66356	RFETS	Heterogeneous	116	831	2166.6 U	333.33 U	166.67 U	166.67 U	833.33 U	166.67 U	166.67 U	166.67 U
D66378	RFETS	Heterogeneous	116	831	2496.0 U	384.00 U	192.00 U	192.00 U	960.00 U	192.00 U	192.00 U	192.00 U
D66438	RFETS	Uncategorized Metal	117	480	30.40 U	1.60 U	107.82	1.60 U	19.20 U	12.16 J	1.60 U	1.60 U
D66523	RFETS	Solidified Organics	112	801	10893 U	573.33 U	649.01 J	573.33 U	6880.0 U	573.33 U	573.33 U	573.33 U
D66525	RFETS	Solidified Inorganics	111	800	3.47 U	0.53 U	0.27 U	0.27 U	1.53 J	0.27 U	0.27 U	0.27 U
D66631	RFETS	Heterogeneous	116	831	9.82 J	0.50 U	0.50 U	0.50 U	9.29 J	0.50 U	0.50 U	0.50 U
D66637	RFETS	Heterogeneous	116	831	104.00 U	16.00 U	8.00 U	8.00 U	40.00 U	8.00 U	8.00 U	8.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D66641	RFETS	Heterogeneous	116	831	1140.0 U	60.00 U	60.00 U	60.00 U	720.00 U	60.00 U	60.00 U	60.00 U
D66649	RFETS	Lead/Cadmium Metal Waste	123	339	1064.0 U	56.00 U	56.00 U	60.65 J	672.00 U	56.00 U	56.00 U	56.00 U
D66773	RFETS	Uncategorized Metal	117	480	16.38 J	0.30 U	0.30 U	0.30 U	11.15 J	0.44 J	0.30 U	0.30 U
D66783	RFETS	Heterogeneous	116	831	4750.0 U	250.00 U	250.00 U	250.00 U	3000.0 U	250.00 U	250.00 U	250.00 U
D66792	RFETS	Heterogeneous	116	831	1900.0 U	100.00 U	100.00 U	100.00 U	1200.0 U	100.00 U	100.00 U	100.00 U
D66860	RFETS	Heterogeneous	116	833	12.16 J	0.20 U	13.02	0.20 U	20.46 J	2.49	0.20 U	0.20 U
D66875	RFETS	Heterogeneous	116	832	1.90 U	0.10 U	0.10 U	0.23 J	1.20 U	0.10 U	0.10 U	0.10 U
D66948	RFETS	Heterogeneous	116	831	114.00 U	6.00 U	6.00 U	6.00 U	72.00 U	6.00 U	6.00 U	6.00 U
D66949	RFETS	Heterogeneous	116	831	11.40 U	0.60 U	0.60 U	0.60 U	7.20 U	0.60 U	0.60 U	0.60 U
D66953	RFETS	Uncategorized Metal	117	480	20.80 U	3.20 U	1.60 U	1.60 U	8.00 U	1.60 U	1.60 U	1.60 U
D66958	RFETS	Heterogeneous	116	831	12.97 J	0.30 U	0.33 J	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D67009	RFETS	Solidified Organics	112	801	6460.0 U	340.00 U	624.24 J	340.00 U	4080.0 U	340.00 U	340.00 U	340.00 U
D67012	RFETS	Solidified Organics	112	801	17100 U	900.00 U	3386.7 J	900.00 U	10800 U	900.00 U	900.00 U	900.00 U
D67047	RFETS	Solidified Inorganics	111	807	5.58 J	0.20 U	1.59 J	0.20 U	3.21 J	0.20 U	0.20 U	0.20 U
D67251	RFETS	Uncategorized Metal	117	480	30221 J	2400.0 U	1200.0 U	1200.0 U	6000.0 U	179752	1200.0 U	1200.0 U
D67263	RFETS	Heterogeneous	116	831	171.00 U	9.00 U	9.00 U	11.37 J	108.00 U	9.00 U	10.00 J	9.00 U
D67277	RFETS	Heterogeneous	116	831	266.00 U	14.00 U	14.00 U	14.00 U	168.00 U	14.00 U	14.00 U	14.00 U
D67278	RFETS	Heterogeneous	116	831	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.53 J	0.10 U	0.10 U
D67312	RFETS	Heterogeneous	116	825	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D67317	RFETS	Uncategorized Metal	117	480	24.15 J	0.53 U	0.27 U	0.27 U	11.63 J	0.77 J	0.27 U	0.27 U
D67390	RFETS	Solidified Organics	112	801	2470.0 U	130.00 U	330.07 J	130.00 U	1560.0 U	130.00 U	130.00 U	130.00 U
D67391	RFETS	Heterogeneous	116	833	10.08 J	0.53 U	0.27 U	0.27 U	1.33 U	0.53 J	0.27 U	0.27 U
D67413	RFETS	Solidified Organics	112	801	14250 U	750.00 U	1446.0 J	750.00 U	9000.0 U	750.00 U	750.00 U	750.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D67434	RFETS	Solidified Inorganics	111	800	6.06 J	0.80 U	0.49 J	0.40 U	2.00 U	0.70 J	0.40 U	0.40 U
D67436	RFETS	Solidified Inorganics	111	800	5.75 J	0.27 U	0.58 J	0.13 U	0.73 J	0.49 J	0.13 U	0.13 U
D67441	RFETS	Solidified Inorganics	111	800	5.72 J	0.80 U	0.72 J	0.40 U	2.00 U	0.40 U	0.40 U	0.40 U
D67448	RFETS	Heterogeneous	116	852	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	2.50	0.10 U	0.10 U
D67455	RFETS	Filter	119	490	18.05 J	0.40 U	0.40 J	0.40 U	67.52 J	2.09 J	0.40 U	0.40 U
D67464	RFETS	Heterogeneous	116	831	4560.0 U	240.00 U	240.00 U	240.00 U	2880.0 U	240.00 U	240.00 U	240.00 U
D67524	RFETS	Heterogeneous	116	832	368.35 J	18.59 U	18.59 U	18.59 U	223.12 U	18.59 U	18.59 U	18.59 U
D67532	RFETS	Lead/Cadmium Metal Waste	123	339	119.70 U	6.30 U	6.30 U	6.30 U	75.60 U	6.30 U	6.30 U	6.30 U
D67535	RFETS	Heterogeneous	116	831	4.31 J	0.40 U	0.23 J	0.20 U	1.00 U	0.20 U	0.20 U	0.20 U
D67539	RFETS	Solidified Organics	112	801	6080.0 U	320.00 U	1238.4 J	320.00 U	3840.0 U	320.00 U	320.00 U	320.00 U
D67541	RFETS	Heterogeneous	116	825	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D67545	RFETS	Solidified Organics	112	801	1710.0 U	90.00 U	227.16 J	90.00 U	1080.0 U	90.00 U	90.00 U	90.00 U
D67567	RFETS	Heterogeneous	116	831	19.53 J	0.30 U	0.30 U	0.30 U	10.53 J	0.72 J	0.30 U	0.30 U
D67582	RFETS	Heterogeneous	116	831	87.17 J	0.40 U	0.73 J	0.40 U	10.79 J	0.40 U	0.40 U	0.40 U
D67603	RFETS	Uncategorized Metal	117	480	293.37 J	13.00 U	13.00 U	13.00 J	156.00 U	13.00 U	13.00 U	13.00 U
D67654	RFETS	Solidified Inorganics	111	800	3.47 U	0.53 U	0.33 J	0.27 U	1.57 J	0.47 J	0.27 U	0.27 U
D67657	RFETS	Solidified Inorganics	111	800	8.88 J	0.53 U	0.66 J	0.27 U	1.33 U	0.27 U	0.27 U	0.27 U
D67678	RFETS	Heterogeneous	116	825	20.37 J	0.43 U	0.43 U	0.43 U	11.98 J	0.43 U	0.43 U	0.43 U
D67698	RFETS	Heterogeneous	116	831	20.80 U	3.20 U	1.60 U	1.60 U	146.01 J	239.94	1.60 U	1.60 U
D67707	RFETS	Heterogeneous	116	831	6.50 U	1.00 U	0.50 U	0.50 U	2.50 U	0.50 U	0.50 U	0.50 U
D67734	RFETS	Heterogeneous	116	831	2090.0 U	110.00 U	110.00 U	252.34 J	1320.0 U	110.00 U	110.00 U	110.00 U
D67735	RFETS	Uncategorized Metal	117	480	34.20 U	1.80 U	1.80 U	2.04 J	21.60 U	1.80 U	1.80 U	1.80 U
D67759	RFETS	Heterogeneous	116	831	53.20 U	2.80 U	2.80 U	2.80 U	33.60 U	220.86	2.80 U	2.80 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D67764	RFETS	Heterogeneous	116	831	26.00 U	4.00 U	2.00 U	2.00 U	10.00 U	298.84	2.00 U	2.00 U
D67766	RFETS	Heterogeneous	116	831	19.50 U	3.00 U	1.50 U	1.50 U	7.50 U	233.17	1.50 U	1.50 U
D67781	RFETS	Heterogeneous	116	831	7.13 J	0.30 U	0.30 U	0.30 U	11.63 J	0.49 J	0.30 U	0.30 U
D67908	RFETS	Heterogeneous	116	832	2.52 J	0.10 U	0.10 U	0.10 U	1.20 U	0.75 J	0.10 U	0.10 U
D67929	RFETS	Heterogeneous	116	832	1.30 U	0.20 U	0.10 U	0.10 J	0.50 U	0.10 U	0.10 U	0.10 U
D67989	RFETS	Heterogeneous	116	831	9.50 U	0.50 U	0.50 U	0.50 U	6.00 U	0.50 U	0.50 U	0.50 U
D67994	RFETS	Heterogeneous	116	831	39.51 J	5.33 U	2.67 J	2.67 U	13.34 U	2.67 U	2.67 U	2.67 U
D68044	RFETS	Heterogeneous	116	825	9.50 U	0.50 U	0.50 U	0.50 U	6.00 U	0.50 U	0.50 U	0.50 U
D68096	RFETS	Heterogeneous	116	821	5.34 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D68247	RFETS	Solidified Inorganics	111	800	1.73 U	0.27 U	0.15 J	0.13 U	0.67 U	0.13 U	0.13 U	0.13 U
D68248	RFETS	Solidified Organics	112	801	2850.0 U	150.00 U	566.85 J	150.00 U	1800.0 U	150.00 U	150.00 U	150.00 U
D68250	RFETS	Solidified Organics	112	801	3230.0 U	170.00 U	577.32 J	170.00 U	2040.0 U	170.00 U	170.00 U	170.00 U
D68254	RFETS	Solidified Inorganics	111	800	3.47 U	0.53 U	0.27 U	0.27 U	2.83 J	0.27 U	0.27 U	0.27 U
D68256	RFETS	Solidified Inorganics	111	800	5.20 U	0.80 U	0.50 J	0.40 U	2.00 U	0.49 J	0.40 U	0.40 U
D68276	RFETS	Heterogeneous	116	852	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	1.38	0.16 J	0.10 U
D68277	RFETS	Uncategorized Metal	117	480	10.42 J	0.50 U	0.50 U	0.50 U	8.70 J	0.50 U	0.50 U	0.50 U
D68377	RFETS	Uncategorized Metal	117	480	4.24 J	0.40 U	0.20 U	0.20 U	1.36 J	0.20 U	0.20 U	0.20 U
D68460	RFETS	Heterogeneous	116	832	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D68480	RFETS	Solidified Inorganics	111	800	9.99 J	0.20 U	0.10 U	0.10 U	0.71 J	4.09	0.10 U	0.10 U
D68486	RFETS	Solidified Organics	112	801	2660.0 U	140.00 U	196.98 J	140.00 U	1680.0 U	140.00 U	140.00 U	140.00 U
D68514	RFETS	Uncategorized Metal	117	480	20.24 J	0.10 U	0.10 U	0.10 U	7.15 J	0.10 U	0.10 U	0.10 U
D68538	RFETS	Lead/Cadmium Metal Waste	123	339	1.30 U	0.20 U	0.10 U	0.10 U	7.50 J	0.47 J	0.10 U	0.10 U
D68600	RFETS	Heterogeneous	116	825	342.00 U	18.00 U	85.91 J	18.00 U	216.00 U	18.00 U	18.00 U	18.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D68601	RFETS	Heterogeneous	116	825	133.00 U	7.00 U	40.26 J	7.00 U	84.00 U	7.00 U	7.00 U	7.00 U
D68702	RFETS	Heterogeneous	116	833	1.90 U	0.10 U	0.11 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D68724	RFETS	Heterogeneous	116	831	3420.0 U	180.00 U	180.00 U	180.00 U	2160.0 U	180.00 U	180.00 U	180.00 U
D68756	RFETS	Heterogeneous	116	831	2.60 U	0.40 U	0.20 U	0.20 U	1.00 U	0.20 U	0.20 U	0.20 U
D68885	RFETS	Heterogeneous	116	831	760.00 U	40.00 U	40.00 U	40.00 U	480.00 U	40.00 U	40.00 U	40.00 U
D68896	RFETS	Heterogeneous	116	831	4047.0 U	213.00 U	213.00 U	335.05 J	2556.0 U	213.00 U	213.00 U	213.00 U
D68975	RFETS	Solidified Organics	112	801	10260 U	540.00 U	553.50 J	540.00 U	6480.0 U	540.00 U	540.00 U	540.00 U
D68999	RFETS	Heterogeneous	116	821	7.60 U	0.40 U	0.40 U	0.40 U	14.03 J	0.74 J	0.40 U	0.40 U
D69091	RFETS	Heterogeneous	116	825	9.50 U	0.50 U	0.50 U	0.50 U	6.00 U	0.50 U	0.50 U	0.50 U
D69095	RFETS	Heterogeneous	116	833	10.26 U	0.54 U	0.54 U	0.54 U	6.48 U	0.54 U	0.54 U	0.54 U
D69113	RFETS	Heterogeneous	116	831	912.00 U	48.00 U	49.20 J	48.00 J	576.00 U	48.00 U	48.00 U	48.00 U
D69250	RFETS	Heterogeneous	116	833	4.29 J	0.10 U	0.11 J	0.10 U	2.15 J	0.10 U	0.10 U	0.10 U
D69287	RFETS	Heterogeneous	116	821	2622.0 U	138.00 U	138.00 U	138.00 U	1656.0 U	138.00 U	138.00 U	138.00 U
D69306	RFETS	Solidified Organics	112	801	4750.0 U	250.00 U	250.00 U	250.00 U	3000.0 U	250.00 U	250.00 U	250.00 U
D69312	RFETS	Solidified Inorganics	111	800	8.61 J	0.80 U	0.47 J	0.40 U	2.00 U	0.40 U	0.40 U	0.40 U
D69364	RFETS	Heterogeneous	116	833	18.66 J	0.30 U	0.30 U	0.30 U	15.17 J	0.30 U	0.30 U	0.30 U
D69400	RFETS	Heterogeneous	116	831	703.00 U	37.00 U	37.00 U	37.00 U	444.00 U	37.00 U	37.00 U	37.00 U
D69406	RFETS	Heterogeneous	116	831	950.00 U	50.00 U	50.00 U	50.00 U	600.00 U	50.00 U	50.00 U	50.00 U
D69413	RFETS	Heterogeneous	116	831	11.40 U	0.60 U	0.60 U	0.60 U	7.20 U	0.60 U	0.60 U	0.60 U
D69418	RFETS	Heterogeneous	116	831	1884.0 J	73.40 U	73.40 U	73.40 U	880.80 U	73.40 U	73.40 U	73.40 U
D69431	RFETS	Heterogeneous	116	831	693.33 U	106.67 U	53.33 U	53.33 U	266.67 U	53.33 U	53.33 U	53.33 U
D69518	RFETS	Heterogeneous	116	833	10.34 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D69602	RFETS	Heterogeneous	116	821	19.00 U	1.00 U	1.00 U	1.00 U	12.00 U	1.00 U	1.00 U	1.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D69759	RFETS	Heterogeneous	116	833	5.84 J	0.30 U	0.30 U	0.46 J	3.60 U	0.30 U	0.30 U	0.30 U
D69855	RFETS	Heterogeneous	116	833	25.25 J	0.20 U	0.20 U	0.20 U	6.60 J	0.20 U	0.20 U	0.20 U
D69877	RFETS	Heterogeneous	116	825	13.44 J	0.50 U	0.50 U	0.50 U	12.09 J	0.50 U	0.50 U	0.50 U
D69883	RFETS	Heterogeneous	116	825	5.70 U	0.30 U	0.30 U	0.30 U	5.97 J	0.30 U	0.30 U	0.30 U
D69975	RFETS	Heterogeneous	116	821	13.30 U	0.70 U	0.70 U	0.70 U	8.40 U	0.70 U	0.70 U	0.70 U
D70063	RFETS	Heterogeneous	116	821	9.69 U	0.51 U	0.85 J	0.51 U	6.12 U	0.51 U	0.51 U	0.51 U
D70077	RFETS	Heterogeneous	116	831	1140.0 U	60.00 U	60.00 U	60.00 U	720.00 U	60.00 U	60.00 U	60.00 U
D70229	RFETS	Heterogeneous	116	831	5.41 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D70353	RFETS	Heterogeneous	116	833	6.79 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D70370	RFETS	Heterogeneous	116	821	14.73 J	0.30 U	0.30 U	0.30 U	7.78 J	3.02	0.30 U	0.30 U
D70379	RFETS	Heterogeneous	116	833	6.20 J	0.10 U	0.10 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D70383	RFETS	Heterogeneous	116	833	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D70446	RFETS	Uncategorized Metal	117	480	19.29 J	2.00 U	16.42	1.00 U	17.99 J	1.14 J	1.00 U	1.00 U
D70448	RFETS	Heterogeneous	116	831	2850.0 U	150.00 U	150.00 U	150.00 U	1800.0 U	150.00 U	150.00 U	150.00 U
D70455	RFETS	Heterogeneous	116	831	13.30 U	0.70 U	1.07 J	0.70 U	8.40 U	0.80 J	0.70 U	0.70 U
D70543	RFETS	Solidified Organics	112	801	15732 U	828.00 U	7954.6 J	828.00 U	9936.0 U	828.00 U	828.00 U	828.00 U
D70661	RFETS	Filter	0	331	8.58 J	1.20 U	0.60 U	0.60 U	227.94 J	0.60 U	0.60 U	0.60 U
D70669	RFETS	Uncategorized Metal	117	480	41.70 J	0.10 U	0.10 U	0.16 J	1.20 U	0.10 U	0.10 U	0.10 U
D70675	RFETS	Solidified Organics	112	801	10.25 J	0.10 U	0.10 U	0.42 J	17.69 J	0.10 U	0.17 J	0.42 J
D70682	RFETS	Heterogeneous	116	831	855.00 U	45.00 U	45.00 U	45.00 U	540.00 U	45.00 U	45.00 U	45.00 U
D70696	RFETS	Heterogeneous	116	821	57.57 J	0.60 U	0.60 U	0.60 U	7.20 U	0.60 U	0.60 U	0.60 U
D70734	RFETS	Heterogeneous	116	833	2.14 J	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D70780	RFETS	Heterogeneous	116	832	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D70856	RFETS	Heterogeneous	116	833	1.90 U	0.10 U	0.10 U	0.10 U	1.65 J	0.10 U	0.10 U	0.10 U
D70882	RFETS	Heterogeneous	116	831	266.00 U	14.00 U	14.00 U	22.74 J	168.00 U	14.00 U	14.00 U	14.00 U
D70937	RFETS	Filter	0	331	6.50 U	1.00 U	0.50 U	0.50 U	374.16 J	0.50 U	0.50 U	0.50 U
D71019	RFETS	Solidified Organics	112	801	24.70 U	1.30 U	1.30 U	2.48 J	15.60 U	1.30 U	1.30 U	1.30 U
D71020	RFETS	Solidified Organics	112	801	17318 U	911.50 U	4880.1 J	911.50 U	10938 U	911.50 U	911.50 U	911.50 U
D71022	RFETS	Solidified Organics	112	801	15600 U	2400.0 U	3597.6 J	1200.0 U	6000.0 U	1200.0 U	1200.0 U	1200.0 U
D71241	RFETS	Heterogeneous	116	833	2.33 J	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D71351	RFETS	Uncategorized Metal	117	480	3.81 J	0.20 U	0.10 U	0.10 U	5.90 J	0.25 J	0.10 U	0.10 U
D71354	RFETS	Uncategorized Metal	117	480	2.70 J	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D71385	RFETS	Heterogeneous	116	833	10.75 J	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D71494	RFETS	Solidified Organics	112	801	7.11 J	0.10 U	0.10 U	0.15 J	7.80 J	0.10 U	0.10 U	0.23 J
D71504	RFETS	Solidified Organics	112	801	3.80 U	0.20 U	0.20 U	0.20 U	7.96 J	0.20 U	0.20 U	0.20 U
D71514	RFETS	Heterogeneous	116	833	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D71521	RFETS	Heterogeneous	116	825	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D71638	RFETS	Uncategorized Metal	117	480	13.00 U	2.00 U	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U
D71804	RFETS	Heterogeneous	116	832	1.89 J	0.20 U	0.10 U	0.10 U	4.23 J	1.17	0.26 J	0.10 U
D71829	RFETS	Heterogeneous	116	852	4180.0 U	220.00 U	220.00 U	220.00 U	2640.0 U	29668	220.00 U	220.00 U
D71838	RFETS	Heterogeneous	116	831	144.40 U	7.60 U	442.97	7.60 U	91.20 U	7.60 U	7.60 U	7.60 U
D71921	RFETS	Heterogeneous	116	833	24.57 J	0.20 U	0.10 U	0.10 U	1.67 J	0.10 U	0.10 U	0.10 U
D71932	RFETS	Solidified Organics	112	801	82991 U	4367.9 U	7014.9 J	4367.9 U	52415 U	4367.9 U	4367.9 U	4367.9 U
D71933	RFETS	Solidified Organics	112	801	10.20 J	0.20 U	0.10 U	0.10 U	4.94 J	0.10 U	0.10 U	0.10 U
D71934	RFETS	Solidified Organics	112	801	13.70 J	0.20 U	0.10 U	0.10 U	9.11 J	0.10 U	0.10 U	0.10 U
D71936	RFETS	Heterogeneous	116	833	411.67 U	21.67 U	85.52 J	59.76 J	260.00 U	21.67 U	21.67 U	21.67 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D71937	RFETS	Heterogeneous	116	833	433.33 U	66.67 U	74.43 J	33.33 U	166.67 U	33.33 U	33.33 U	33.33 U
D71938	RFETS	Heterogeneous	116	833	34.20 U	1.80 U	1.80 U	1.80 U	21.60 U	1.80 U	1.80 U	1.80 U
D71940	RFETS	Solidified Organics	112	801	19000 U	1000.0 U	3580.0 J	1000.0 U	12000 U	1000.0 U	1000.0 U	1000.0 U
D71941	RFETS	Solidified Organics	112	801	19000 U	1000.0 U	8276.0 J	1000.0 U	12000 U	1000.0 U	1000.0 U	1000.0 U
D72010	RFETS	Heterogeneous	116	832	38.55 J	0.60 U	0.30 U	0.30 U	17.91 J	0.30 U	0.30 U	0.30 U
D72079	RFETS	Uncategorized Metal	117	480	123.50 U	6.50 U	6.50 U	6.50 U	78.00 U	6.50 U	6.50 U	6.50 U
D72127	RFETS	Solidified Organics	112	801	7.60 U	0.40 U	0.40 U	0.42 J	4.80 U	0.40 U	0.40 U	0.40 U
D72128	RFETS	Solidified Organics	112	801	6359.9 J	130.00 U	130.00 U	130.00 U	4542.0 J	2721.4	130.00 U	130.00 U
D72131	RFETS	Heterogeneous	116	833	3.47 U	0.53 U	0.27 U	0.27 U	2.44 J	0.27 U	0.27 U	0.27 U
D72132	RFETS	Solidified Organics	112	801	1612.4 J	96.00 U	48.00 U	48.00 U	283.06 J	8080.9	48.00 U	48.00 U
D72133	RFETS	Solidified Organics	112	801	4.48 J	0.20 U	0.20 J	0.20 U	3.54 J	0.20 U	0.20 U	0.20 U
D72136	RFETS	Solidified Organics	112	801	399.00 U	21.00 U	21.00 U	21.00 U	252.00 U	665.70	21.00 U	21.00 U
D72139	RFETS	Solidified Organics	112	801	36.10 U	1.90 U	1.90 U	1.90 U	24.65 J	22.74	1.90 U	1.90 U
D72178	RFETS	Heterogeneous	116	821	5.70 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D72186	RFETS	Heterogeneous	116	821	16.26 J	0.20 U	0.20 U	0.20 U	2.40 U	0.21 J	0.20 U	0.20 U
D72195	RFETS	Heterogeneous	116	833	15.12 J	0.10 U	0.30 J	0.10 U	6.84 J	0.25 J	0.10 U	0.11 J
D72255	RFETS	Heterogeneous	116	833	25.68 J	0.30 U	0.30 U	0.30 U	9.46 J	0.30 U	0.30 U	0.30 U
D72267	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.15 J	0.10 U	0.50 U	0.10 U	0.11 J	0.10 U
D72293	RFETS	Heterogeneous	116	833	6.63 J	0.10 U	0.14 J	0.10 U	16.50 J	0.77 J	0.17 J	0.10 U
D72333	RFETS	Heterogeneous	116	831	5.70 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D72339	RFETS	Heterogeneous	116	821	9.50 U	0.50 U	0.50 U	0.50 U	6.00 U	0.50 U	0.50 U	0.50 U
D72347	RFETS	Heterogeneous	116	833	8.58 J	0.10 U	0.10 U	0.10 U	3.45 J	0.89 J	0.10 U	0.10 U
D72375	RFETS	Heterogeneous	116	831	1520.0 U	80.00 U	80.00 U	80.00 U	960.00 U	80.00 U	80.00 U	80.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D72434	RFETS	Heterogeneous	116	831	3990.0 U	210.00 U	210.00 U	210.00 U	2520.0 U	210.00 U	210.00 U	210.00 U
D72436	RFETS	Uncategorized Metal	117	480	66.00 J	0.60 U	0.30 U	0.30 U	2.60 J	0.30 U	0.30 U	0.30 U
D72542	RFETS	Heterogeneous	116	832	130.00 U	20.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
D72545	RFETS	Solidified Inorganics	111	800	2.46 J	0.20 U	0.10 U	0.10 U	0.52 J	0.10 U	0.10 U	0.10 U
D72546	RFETS	Heterogeneous	116	832	195.00 U	30.00 U	15.00 U	15.00 U	75.00 U	15.00 U	15.00 U	15.00 U
D72566	RFETS	Solidified Organics	112	801	15.20 U	0.80 U	0.80 U	0.80 U	21.82 J	0.80 U	0.80 U	0.80 U
D72598	RFETS	Heterogeneous	116	821	11.40 U	0.60 U	4.11 J	0.60 U	7.20 U	0.60 U	0.60 U	0.60 U
D72618	RFETS	Heterogeneous	116	833	2.83 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D72619	RFETS	Solidified Organics	112	801	1.90 U	0.10 U	0.10 U	0.10 U	314.00 J	0.10 U	0.10 U	0.10 U
D72623	RFETS	Solidified Organics	112	801	6.50 U	1.00 U	0.50 U	0.50 U	6.19 J	0.50 U	0.50 U	0.50 U
D72631	RFETS	Solidified Organics	112	801	1.90 U	0.10 U	0.10 U	0.34 J	6.46 J	0.10 U	0.10 U	0.10 U
D72632	RFETS	Solidified Organics	112	801	2.64 J	0.10 U	0.10 U	0.29 J	8.42 J	0.10 U	0.10 U	0.10 U
D72673	RFETS	Heterogeneous	116	833	17.92 J	0.20 U	1.29 J	0.42 J	18.02 J	0.20 U	0.20 U	0.26 J
D72819	RFETS	Heterogeneous	116	833	29.08 J	0.40 U	0.40 U	0.40 U	7.14 J	0.40 U	0.40 U	0.40 U
D72822	RFETS	Heterogeneous	116	831	3.47 U	0.53 U	0.81 J	0.27 U	1.34 U	0.27 U	0.27 U	0.27 U
D72831	RFETS	Uncategorized Metal	117	480	52.00 U	8.00 U	4.00 U	4.00 U	20.00 U	4.00 U	4.00 U	4.00 U
D72887	RFETS	Heterogeneous	116	833	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D72923	RFETS	Heterogeneous	116	833	54.23 J	0.40 U	0.40 U	0.40 U	17.22 J	0.40 U	0.40 U	0.40 U
D72932	RFETS	Heterogeneous	116	825	8.68 J	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D73054	RFETS	Heterogeneous	0	336	1473.3 U	226.67 U	113.33 U	113.33 U	566.67 U	508.19 U	113.33 U	113.33 U
D73074	RFETS	Heterogeneous	116	833	75.28 J	0.20 U	0.20 U	0.20 J	9.61 J	1.00 J	0.20 U	0.20 U
D73117	RFETS	Uncategorized Metal	117	480	5.20 U	0.80 U	0.40 U	0.40 U	2.00 U	0.40 U	0.40 U	0.40 U
D73123	RFETS	Heterogeneous	116	831	2394.0 U	126.00 U	126.00 U	880.24 J	1512.0 U	126.00 U	126.00 U	126.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D73134	RFETS	Heterogeneous	116	831	936.00 U	144.00 U	72.00 U	72.00 U	360.00 U	72.00 U	72.00 U	72.00 U
D73136	RFETS	Solidified Inorganics	111	807	2.19 J	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D73274	RFETS	Heterogeneous	116	831	950.00 U	50.00 U	50.00 U	50.00 U	600.00 U	50.00 U	50.00 U	50.00 U
D73285	RFETS	Solidified Organics	112	801	7.06 J	0.10 U	0.10 J	0.14 J	5.84 J	0.10 U	0.10 U	0.10 U
D73293	RFETS	Solidified Organics	112	801	3.27 J	0.10 U	0.22 J	0.33 J	1.20 U	0.10 U	0.10 U	0.10 U
D73295	RFETS	Solidified Organics	112	801	6.58 J	0.10 U	0.10 U	0.21 J	3.42 J	0.10 U	0.10 U	0.10 U
D73296	RFETS	Solidified Organics	112	801	1.90 U	0.10 U	0.96 J	0.14 J	1.20 U	0.25 J	0.12 J	0.10 U
D73301	RFETS	Solidified Organics	112	801	10.40 J	0.20 U	0.20 U	1.24 J	8.20 J	0.20 U	0.20 U	0.20 U
D73605	RFETS	Lead/Cadmium Metal Waste	123	339	1.30 U	0.20 U	0.15 J	0.10 U	5.07 J	0.15 J	0.10 U	0.10 U
D73632	RFETS	Heterogeneous	116	825	13.30 U	0.70 U	0.70 U	0.70 U	8.40 U	0.70 U	0.70 U	0.70 U
D73667	RFETS	Solidified Organics	112	801	2.64 J	0.10 U	0.10 U	0.10 U	5.79 J	0.10 U	0.10 U	0.10 U
D73672	RFETS	Solidified Organics	112	801	4.94 J	0.10 U	0.10 U	0.22 J	1.20 U	0.10 U	0.10 U	0.10 U
D73745	RFETS	Heterogeneous	116	832	1.89 J	0.20 U	0.10 J	0.10 U	11.29 J	0.10 U	0.10 U	0.10 U
D73828	RFETS	Heterogeneous	116	833	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D73848	RFETS	Heterogeneous	116	821	2.80 J	0.13 U	0.13 U	0.13 U	1.60 U	0.13 U	0.13 U	0.13 U
D73987	RFETS	Lead/Cadmium Metal Waste	123	339	3.90 U	0.60 U	20.72	0.30 U	4.47 J	0.30 U	0.30 U	0.30 U
D74007	RFETS	Uncategorized Metal	117	480	11.47 J	0.60 U	0.30 U	0.30 U	6.01 J	0.30 U	0.30 U	0.30 U
D74110	RFETS	Heterogeneous	116	833	1.90 U	0.10 U	0.14 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D74147	RFETS	Solidified Organics	112	801	15.20 U	0.80 U	6.00 J	1.82 J	9.60 U	3.15 J	2.12 J	0.80 U
D74156	RFETS	Solidified Organics	112	801	11.40 U	0.60 U	4.17 J	1.92 J	7.20 U	3.65 J	2.15 J	0.60 U
D74374	RFETS	Heterogeneous	116	833	4.98 J	0.20 U	0.16 J	0.10 U	0.94 J	0.10 U	0.10 U	0.10 U
D74683	RFETS	Heterogeneous	116	821	28.50 U	1.50 U	1.50 U	0.15 U	18.00 U	1.50 U	1.50 U	1.50 U
D74904	RFETS	Heterogeneous	116	832	2.60 J	0.20 U	0.10 U	0.10 U	0.83 J	0.10 U	0.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D74913	RFETS	Heterogeneous	116	832	5.70 U	0.30 U	0.30 U	0.30 U	43.43 J	0.33 J	0.30 U	0.30 U
D75039	RFETS	Heterogeneous	116	832	158.92 J	0.30 U	0.30 U	0.30 U	35.16 J	0.30 U	0.30 U	0.39 J
D75265	RFETS	Heterogeneous	116	833	63.88 J	1.20 U	0.12 U	0.12 U	19.11 J	1.20 U	1.20 U	1.20 U
D75267	RFETS	Heterogeneous	116	832	3.80 U	0.20 U	0.20 U	0.20 U	2.92 J	0.20 U	0.20 U	0.20 U
D75278	RFETS	Heterogeneous	116	832	17.98 J	0.30 U	0.30 U	0.30 U	10.17 J	1.50 J	0.30 U	0.30 U
D75399	RFETS	Heterogeneous	116	833	7.60 U	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U
D75564	RFETS	Heterogeneous	116	825	4.47 J	0.13 U	0.13 U	0.13 U	1.60 U	0.13 U	0.13 U	0.13 U
D75868	RFETS	Heterogeneous	116	825	11.40 U	0.60 U	0.60 U	0.60 U	7.20 U	0.60 U	0.60 U	0.60 U
D75888	RFETS	Heterogeneous	116	833	7.77 J	0.10 U	0.12 J	0.10 U	4.92 J	0.10 U	0.10 U	0.10 U
D75926	RFETS	Heterogeneous	116	832	7.60 U	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U
D75930	RFETS	Heterogeneous	116	832	1300.0 U	200.00 U	100.00 U	100.00 U	500.00 J	100.00 U	100.00 U	100.00 U
D75947	RFETS	Heterogeneous	116	832	5.27 J	0.10 U	0.10 U	0.10 U	2.82 J	0.10 U	0.10 U	0.10 U
D75976	RFETS	Heterogeneous	116	833	5.57 J	0.27 U	0.13 U	0.13 U	0.67 U	0.13 U	0.13 U	0.13 U
D76044	RFETS	Heterogeneous	116	831	18.17 J	0.27 U	0.27 U	0.27 U	4.29 J	0.27 U	0.27 U	0.27 U
D76050	RFETS	Heterogeneous	116	832	1.90 U	0.10 U	0.10 U	0.10 J	1.20 U	0.10 U	0.10 U	0.10 U
D76054	RFETS	Heterogeneous	116	831	5.70 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D76098	RFETS	Heterogeneous	116	832	2.60 U	0.40 U	0.20 U	0.20 U	4.22 J	0.20 U	0.20 U	0.20 U
D76135	RFETS	Solidified Organics	112	801	346.67 U	53.33 U	26.67 U	26.67 U	133.34 U	26.67 U	26.67 U	26.67 U
D76136	RFETS	Solidified Inorganics	111	803	5.20 U	0.80 U	1.30 J	1.42 J	2.00 U	5.00	0.40 U	0.40 U
D76138	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76142	RFETS	Solidified Inorganics	111	800	3.12 U	0.48 U	0.66 J	0.24 U	5.55 J	0.24 U	0.24 U	0.24 U
D76143	RFETS	Solidified Inorganics	111	803	3.90 U	0.60 U	0.90 J	0.96 J	1.50 U	3.26	0.30 U	0.30 U
D76144	RFETS	Solidified Inorganics	111	800	8.67 U	1.33 U	0.67 U	0.98 J	3.34 U	1.50 J	0.67 U	0.67 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D76146	RFETS	Solidified Inorganics	0	292	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76147	RFETS	Solidified Inorganics	111	803	1.90 U	0.10 U	1.66	0.25 J	4.53 J	0.10 U	0.20 J	0.10 U
D76182	RFETS	Solidified Inorganics	111	800	13.30 U	0.70 U	4.07 J	0.70 U	8.40 U	0.70 U	0.70 U	0.70 U
D76183	RFETS	Solidified Inorganics	111	800	1.73 U	0.27 U	0.47 J	0.18 J	0.92 J	0.37 J	0.13 U	0.13 U
D76185	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.12 J	0.10 U	0.50 J	0.10 U	0.10 U	0.10 U
D76187	RFETS	Solidified Inorganics	111	803	6.50 U	1.00 U	1.56 J	1.44 J	2.50 U	6.37	0.50 U	0.50 U
D76189	RFETS	Solidified Inorganics	111	803	26.00 U	4.00 U	2.00 U	4.64 J	10.00 U	12.57 J	2.00 U	2.00 U
D76192	RFETS	Solidified Inorganics	111	803	1.30 U	0.20 U	0.32 J	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76194	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76195	RFETS	Solidified Organics	112	801	9120.0 U	480.00 U	480.00 U	480.00 U	5760.0 U	480.00 U	480.00 U	480.00 U
D76196	RFETS	Solidified Organics	112	801	3732.5 J	333.33 U	2042.3	166.67 U	833.34 U	166.67 U	166.67 U	166.67 U
D76199	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.19 J	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76200	RFETS	Solidified Organics	112	801	8233.3 U	1266.6 U	2371.8 J	633.33 U	3166.6 U	633.33 U	633.33 U	633.33 U
D76203	RFETS	Solidified Organics	112	801	2903.3 U	446.67 U	283.41 J	223.33 U	1116.6 U	223.33 U	223.33 U	223.33 U
D76205	RFETS	Solidified Inorganics	111	800	1.30 U	0.20 U	0.10 U	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76206	RFETS	Solidified Inorganics	111	803	5.20 U	0.80 U	0.51 J	0.74 J	2.00 U	4.19	0.40 U	0.40 U
D76217	RFETS	Heterogeneous	116	833	20.84 J	2.00 U	60.66	1.00 U	7.67 J	1.00 U	1.00 U	1.00 U
D76282	RFETS	Solidified Inorganics	111	800	147.33 U	22.67 U	39.18 J	11.33 U	56.67 U	11.33 U	11.33 U	11.33 U
D76283	RFETS	Solidified Organics	112	801	1170.0 U	180.00 U	90.00 J	90.00 U	450.00 U	90.00 U	90.00 U	90.00 U
D76287	RFETS	Solidified Inorganics	111	800	69.33 U	10.67 U	14.69 J	5.33 U	26.67 U	5.33 U	5.33 U	5.33 U
D76293	RFETS	Heterogeneous	116	833	7.60 U	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U	0.40 U	0.40 U
D76302	RFETS	Solidified Inorganics	111	800	39.00 U	6.00 U	3.00 U	3.00 U	15.00 U	3.00 U	3.00 U	3.00 U
D76303	RFETS	Solidified Inorganics	111	803	3.47 U	0.53 U	1.03 J	1.64 J	5.51 J	1.98 J	0.27 U	0.27 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D76305	RFETS	Solidified Inorganics	111	800	156.00 U	24.00 U	22.21 J	12.00 U	60.00 U	12.00 U	12.00 U	12.00 U
D76306	RFETS	Heterogeneous	116	833	18.88 J	0.80 U	1.15 J	0.80 U	9.60 U	0.80 U	0.80 U	0.80 U
D76362	RFETS	Heterogeneous	116	833	97.62 J	13.33 U	13.46 J	6.67 U	33.34 U	6.67 U	6.67 U	6.67 U
D76406	RFETS	Heterogeneous	116	831	1.90 U	0.10 U	0.16 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D76437	RFETS	Heterogeneous	116	833	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 J	0.20 U	0.20 U
D76443	RFETS	Heterogeneous	116	825	16.85 J	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D76452	RFETS	Heterogeneous	116	825	14.20 J	0.20 U	0.20 U	0.20 U	2.00 U	0.20 U	0.20 U	0.20 U
D76454	RFETS	Heterogeneous	116	825	1.90 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D76456	RFETS	Heterogeneous	116	825	11.80 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D76461	RFETS	Heterogeneous	116	825	5.70 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D76463	RFETS	Heterogeneous	116	825	5.70 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U	0.30 U	0.30 U
D76470	RFETS	Solidified Inorganics	111	803	1.30 U	0.20 U	0.42 J	0.10 U	0.50 U	0.10 U	0.10 U	0.10 U
D76587	RFETS	Heterogeneous	116	825	1.90 U	0.10 U	0.14 J	0.12 J	1.20 U	0.17 J	0.10 U	0.10 U
D76596	RFETS	Heterogeneous	116	825	25.44 J	0.10 U	0.11 J	0.18 J	2.27 J	0.25 J	0.10 U	0.10 U
D76627	RFETS	Heterogeneous	116	825	1.90 U	0.10 U	0.10 J	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D76630	RFETS	Heterogeneous	116	825	14.78 J	0.10 U	0.10 U	0.11 J	3.66 J	0.17 J	0.10 U	0.10 U
D76635	RFETS	Heterogeneous	116	825	3.80 U	0.20 U	0.20 U	0.20 U	2.40 U	0.21 J	0.20 U	0.20 U
D76652	RFETS	Heterogeneous	116	833	6.87 J	0.20 U	0.10 U	0.10 U	0.57 J	0.10 U	0.10 U	0.10 U
D76677	RFETS	Solidified Inorganics	111	800	45.60 U	2.40 U	2.53 J	7.61 J	28.80 U	6.65 J	2.40 U	2.40 U
D76710	RFETS	Heterogeneous	116	833	38.00 U	2.00 U	2.51 J	2.00 U	24.00 U	2.00 U	2.00 U	2.00 U
D76712	RFETS	Heterogeneous	116	833	11.83 J	0.30 U	0.30 U	0.30 U	106.59 J	1.80 J	0.30 U	0.30 U
D76715	RFETS	Heterogeneous	116	832	4.34 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D76811	RFETS	Heterogeneous	116	832	3.80 U	0.20 U	0.20 U	0.20 U	3.95 J	0.20 U	0.20 U	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methanol	Ethyl Ether	1,1,2-Trichloro-1,2,2-Trifluoro ethane	1,1-Di-chloro-ethene	Acetone	Methylene Chloride	1,1-Di-chloro-ethane	cis-1,2-Dichloro-ethene
D76908	RFETS	Heterogeneous	116	833	53.56 J	0.10 U	6.99	0.10 U	1.20 U	0.10 U	0.10 U	0.10 U
D76911	RFETS	Heterogeneous	116	832	2.60 U	0.40 U	0.20 U	0.20 U	1.00 U	0.20 U	0.20 U	0.20 U
D77088	RFETS	Heterogeneous	116	833	11.76 J	0.40 U	0.20 U	0.20 U	1.00 J	0.20 U	0.20 U	0.20 U
D77227	RFETS	Heterogeneous	116	833	5.20 U	0.80 U	0.40 U	0.40 U	2.00 U	0.40 U	0.40 U	0.40 U
D77285	RFETS	Heterogeneous	116	833	3.80 U	0.20 U	0.20 U	0.20 U	4.60 J	0.20 U	0.20 U	0.20 U
D77621	RFETS	Heterogeneous	0	336	3.47 U	0.53 U	6.22	0.27 U	1.34 U	0.27 U	0.27 U	0.27 U
D80765	RFETS	Heterogeneous	116	833	3.80 U	0.20 U	0.30 J	0.20 U	2.40 U	0.20 U	0.20 U	0.20 U
D80772	RFETS	Heterogeneous	116	833	19.00 U	1.00 U	1.00 U	1.00 U	12.00 U	1.00 U	1.00 U	1.00 U
D80774	RFETS	Heterogeneous	116	833	58.90 U	3.10 U	4.13 J	3.10 U	37.20 U	3.10 U	3.10 U	3.10 U
D80776	RFETS	Heterogeneous	116	832	24.39 J	0.10 U	0.10 U	0.13 J	39.82 J	1.68	0.51 J	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Trl chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
000365	RFETS	Uncategorized Metal	217	480	17.00 U	12.00 U	1600.0 J	17.00 U	11.00 U	13.00	11.00 U	17.00 U	28.00 J
000371	INEL	Graphite	215	300	17.00 U	0.03 U	9.20	0.03 U	0.10 J	0.03 U	0.03 U	17.00 U	0.26 J
000373	INEL	Graphite	215	300	17.00 U	0.01 U	0.66 J	0.02 U	0.03 J	0.01 U	0.02 U	17.00 U	0.02 U
000384	RFETS	Uncategorized Metal	217	320	5.00 U	0.01 J	0.09 U	0.01 U	0.10	0.14	0.01 U	5.00 U	0.01 U
000393	INEL	Uncategorized Metal	217	480	17.00 U	0.03 U	0.14 J	0.04 U	0.05 J	0.18 J	0.03 J	17.00 U	0.03 U
000401	RFETS	Inorganic Non-metal	222	371	5.00 U	1.80	0.15 J	0.02 U	0.07 JB	0.06	0.03 J	5.00 U	0.01 J
000403	INEL	Inorganic Non-metal	218	440	17.00 U	8.20 E	0.27 J	0.04 U	1.80	0.21 J	0.05 J	17.00 U	0.03 J
000405	RFETS	Uncategorized Metal	217	480	7.30 J	0.88 U	53.00 J	1.20 U	0.85 U	1.00	0.80 U	5.00 U	1.50 J
000436	INEL	Solidified Organics	212	3	17.00 U	44.00 U	1500.0	42.00 U	8200.0	46.00 U	42.00 U	17.00 U	42.00 U
000442	INEL	Solidified Inorganics	213	4	51.00 U	0.06 U	0.32 J	0.55 J	0.36 J	0.18 J	0.05 U	51.00 U	0.05 U
000446	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 U	0.49 J	0.01 U	0.10 JB	0.11	0.01 U	5.00 U	0.02 J
000478	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 U	0.20 J	0.01 U	0.18	0.05	0.01 U	5.00 U	0.05 J
000501	INEL	Graphite	215	300	17.00 U	0.01 U	0.12 J	0.02 U	0.02 J	0.01 U	0.02 U	17.00 U	0.02 U
000558	INEL	Heterogeneous	221	464	17.00 U	0.15 J	0.17 J	0.36 J	0.27 J	0.18 J	0.08 U	17.00 U	0.08 U
000567	RFETS	Inorganic Non-metal	222	371	5.00 U	3.50 J	320.00 U	2.30 U	2.50 J	1.80	1.50 U	5.00 U	1.50 U
000568	RFETS	Solidified Organics	226	432	17.00 U	0.98 U	0.87 U	2.90 J	0.95 U	1.10	0.88 U	17.00 U	0.89 U
000593	INEL	Solidified Inorganics	211	7	17.00 U	0.02 U	0.33 J	0.02 U	0.13 J	0.06 J	0.02 U	17.00 U	0.02 U
000613	INEL	Graphite	215	300	17.00 U	0.03 U	0.08 J	0.04 U	0.06 J	0.03 U	0.03 U	17.00 U	0.03 U
000630	INEL	Solidified Inorganics	213	4	51.00 U	0.07 U	0.46 J	12.00	0.34 J	0.46 J	0.07 U	51.00 U	0.07 U
000648	RFETS	Solidified Inorganics	213	4	70.00 U	0.03 U	0.09 U	5.40 D	0.25 JD	0.25	0.03 U	70.00 U	0.03 U
000675	RFETS	Inorganic Non-metal	218	440	12.00 J	0.39 J	0.23 U	0.64 J	0.90 J	0.50	0.13 U	5.00 U	0.13 U
000823	RFETS	Solidified Inorganics	213	4	120.00 U	0.02 U	0.28 J	1.50	0.85	0.20	0.02 U	120.00 U	0.03 J
000828	INEL	Graphite	215	300	17.00 U	0.01 U	0.08 J	0.09 J	0.05 J	0.01 U	0.02 U	17.00 U	0.02 U
001016	INEL	Graphite	215	300	17.00 U	0.01 U	0.09 J	0.19 J	0.03 J	0.01 U	0.02 U	17.00 U	0.02 U
001024	INEL	Graphite	215	300	17.00 U	0.01 U	0.07 J	0.09 J	0.04 J	0.01 U	0.02 U	17.00 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
001084	INEL	Solidified Inorganics	213	4	17.00 U	0.04 J	0.25 J	0.66 J	0.34 J	0.02 U	0.02 U	17.00 U	0.02 U
001139	INEL	Solidified Inorganics	211	7	17.00 U	0.17 U	34.00	0.16 U	0.23 J	0.17 U	0.16 U	17.00 U	0.16 U
001157	INEL	Combustible	223	339	17.00 U	0.47 J	0.12 J	0.04 U	0.35 J	0.09 U	0.23 J	17.00 U	0.03 U
001161	INEL	Graphite	215	300	17.00 U	0.02 U	0.06 J	0.03 U	0.04 J	0.02 U	0.02 U	17.00 U	0.03 U
001258	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 U	0.15 J	0.01 U	0.14	0.29	0.01 U	5.00 U	0.02 J
001370	INEL	Combustible	223	339	17.00 U	2.70	0.78 J	0.12 U	28.00	0.13 J	0.24 J	17.00 U	0.22 J
001377	INEL	Combustible	223	339	17.00 U	0.36	0.18 J	0.04 U	0.20 J	0.21 J	0.64	17.00 U	0.03 J
001410	INEL	Solidified Inorganics	214	292	17.00 U	0.12 U	0.22 J	0.61 J	0.12 U	0.14 U	0.11 U	17.00 U	0.11 U
001437	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 J	1.40 J	0.01 U	0.08 J	0.16	0.01 U	5.00 U	0.07 J
001475	RFETS	Solidified Inorganics	211	1	5.00 U	0.20 U	0.04 U	0.28 U	0.42 JB	3.40	0.18 U	5.00 U	0.18 U
001493	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 J	0.15 J	0.06 J	0.18	0.18	0.01 U	5.00 U	0.06 J
001619	INEL	Graphite	215	300	17.00 U	0.03 U	0.08 J	0.04 U	0.07 J	0.03 U	0.03 U	17.00 U	0.03 U
001625	INEL	Graphite	215	300	17.00 U	0.02 U	0.13 J	0.02 U	0.05 J	0.02 U	0.02 U	17.00 U	0.02 U
001633	INEL	Solidified Organics	226	432	17.00 U	0.70 U	36.00 B	2.60 J	0.68 U	0.80 U	0.63 U	17.00 U	150.00
001655	INEL	Combustible	223	339	17.00 U	21.00 J	12.00 J	2.60 U	290.00	2.10 U	1.70 U	17.00 U	16.00 J
001662	INEL	Graphite	215	300	17.00 U	0.02 U	0.08 J	0.02 U	0.07 J	0.02 U	0.02 U	17.00 U	0.02 U
001663	RFETS	Solidified Organics	226	432	17.00 U	5.50	0.38 U	0.59 U	0.57 J	4.40	0.38 U	17.00 U	0.38 U
001667	INEL	Graphite	215	300	17.00 U	0.02 U	0.17 J	0.05 J	0.05 J	0.02 U	0.02 U	17.00 U	0.02 U
001670	RFETS	Salt Waste	224	411	5.00 U	0.09 J	1.10 B	0.14 J	0.16 JB	0.10	0.03 U	5.00 U	1.80 B
001677	INEL	Heterogeneous	221	302	17.00 U	2.00	45.00	0.45 U	0.50 U	1.00	0.46 U	17.00 U	130.00
001678	RFETS	Combustible	223	339	5.00 U	23.00	0.39 J	0.14 U	64.00 E	0.99	0.45 J	5.00 U	0.14 J
001689	INEL	Heterogeneous	221	302	17.00 U	0.04 J	0.20 J	0.13 J	0.22 J	0.09 J	0.03 U	17.00 U	0.03 U
001692	RFETS	Solidified Organics	226	432	17.00 U	0.25 U	0.22 U	0.40 J	0.24 U	1.30	0.23 U	17.00 U	0.23 U
001695	INEL	Combustible	223	339	17.00 U	13.00 J	4.80 BJ	2.30 U	290.00	1.80 U	1.40 U	17.00 U	1.50 J
001697	INEL	Graphite	215	300	17.00 U	0.02 U	0.09 J	0.02 U	0.04 J	0.02 U	0.02 U	17.00 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
001751	RFETS	Uncategorized Metal	217	320	5.00 U	0.01 U	0.12 J	0.01 U	0.08 J	0.02	0.01 U	5.00 U	0.02 J
001752	INEL	Graphite	215	300	17.00 U	0.02 U	0.10 J	0.02 U	0.04 J	0.02 U	0.02 U	17.00 U	0.02 U
001754	INEL	Uncategorized Metal	217	320	1.30 U	0.04 U	0.43 J	0.28 J	0.11 J	0.04 U	0.06 U	1.30 U	0.06 U
001757	INEL	Inorganic Non-metal	222	371	17.00 U	2.40	0.62	0.04 U	0.96	0.03 U	0.03 U	17.00 U	0.03 J
001773	INEL	Graphite	215	300	17.00 U	0.02 U	0.10 J	0.02 U	0.04 J	0.02 U	0.02 U	17.00 U	0.02 U
001779	INEL	Graphite	215	300	17.00 U	0.02 U	0.06 J	0.02 U	0.03 J	0.02 U	0.02 U	17.00 U	0.02 U
001784	INEL	Combustible	223	339	17.00 U	0.73 J	0.17 J	0.04 U	0.13 J	0.26 J	0.12 J	17.00 U	0.03 U
001813	INEL	Solidified Inorganics	213	4	17.00 U	6.00 U	6.00 U	1700.0	6.10 U	6.20 U	5.70 U	17.00 U	5.70 U
001873	INEL	Solidified Inorganics	214	292	17.00 U	0.04 U	0.11 J	0.07 J	0.17 J	0.04 U	0.03 U	17.00 U	0.03 U
001899	RFETS	Solidified Inorganics	211	3	5.00 U	130.00 U	15000 U	180.00 U	23000	150.00	120.00 U	5.00 U	120.00 U
001900	INEL	Solidified Inorganics	214	292	17.00 U	0.04 U	0.15 J	0.19 J	0.20 J	0.12 J	0.03 U	17.00 U	0.03 U
001919	RFETS	Uncategorized Metal	217	320	5.00 U	0.02 J	0.53 J	0.01 U	0.09 J	0.01	0.01 U	5.00 U	0.01 J
001937	RFETS	Solidified Organics	212	3	5.00 U	16.00 U	180.00 U	22.00 U	2100.0	18.00	14.00 U	5.00 U	14.00 U
002013	RFETS	Solidified Organics	212	3	5.00 U	11.00 U	120.00 U	16.00 U	1600.0	13.00	10.00 U	5.00 U	10.00 U
002046	INEL	Solidified Organics	212	3	17.00 U	37.00 U	530.00	35.00 U	5600.0	39.00 U	35.00 U	17.00 U	35.00 U
002065	INEL	Solidified Inorganics	214	292	5.00 J	0.10 J	0.16 U	0.26 U	0.16 U	0.12 U	0.09 U	5.00 U	0.09 U
002084	INEL	Solidified Inorganics	213	4	34.00 U	0.04 U	0.19 J	0.04 U	0.18 J	0.10 J	0.04 U	34.00 U	0.04 U
002220	RFETS	Uncategorized Metal	217	481	5.00 U	0.03 U	4.00 JB	0.04 U	0.03 U	0.03	0.03 U	5.00 U	0.17 JB
002222	INEL	Graphite	215	300	17.00 U	0.02 U	0.12 J	0.02 U	0.12 J	0.02 U	0.02 U	17.00 U	0.02 U
002338	RFETS	Inorganic Non-metal	222	371	17.00 U	0.78 U	32.00	1.10 U	0.76 U	0.90	0.71 U	17.00 U	140.00
002354	INEL	Combustible	223	339	17.00 U	2.80	8.20	0.07 U	15.00	0.87 J	0.42 J	17.00 U	0.09 J
002363	INEL	Inorganic Non-metal	222	371	17.00 U	0.20 J	0.25 J	0.04 U	0.14 J	0.40	0.06 J	17.00 U	0.04 J
002365	INEL	Uncategorized Metal	217	480	17.00 U	0.07 U	13.00	0.10 U	0.09 J	0.43 J	0.13 J	17.00 U	0.06 U
002542	INEL	Solidified Organics	212	3	17.00 U	11.00	180.00	7.60 U	2100.0	8.40 U	7.70 U	17.00 U	7.70 U
002678	RFETS	Solidified Organics	226	432	17.00 U	0.89 U	130.00	1.30 U	0.87 U	1.00	0.81 U	17.00 U	170.00

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
002791	INEL	Inorganic Non-metal	222	371	17.00 U	10.00	0.72	0.07 U	0.35 J	0.05 U	0.08 J	17.00 U	0.06 J
002797	RFETS	Solidified Organics	226	432	17.00 U	2.60 J	0.40 U	1.20 J	0.43 U	2.40	0.40 U	17.00 U	0.41 U
002814	RFETS	Solidified Inorganics	211	7	5.00 U	0.20 U	40.00 J	0.29 U	0.58 J	0.24	0.19 U	5.00 U	1.60 J
003017	INEL	Solidified Inorganics	211	1	5.00 U	0.05 U	5.80 U	0.07 U	0.13 J	0.15 J	0.05 U	5.00 U	0.05 U
003088	INEL	Inorganic Non-metal	222	371	17.00 U	0.31 J	0.27 J	0.04 U	0.28 J	0.13 J	0.05 J	17.00 U	0.03 J
003091	RFETS	Inorganic Non-metal	222	371	17.00 U	0.04 U	0.62 J	0.04 U	0.20 J	0.08	0.03 U	17.00 U	0.03 J
003111	INEL	Inorganic Non-metal	222	371	17.00 U	7.30 E	0.29 J	0.04 U	0.25 J	0.03 U	0.04 J	17.00 U	0.04 J
003121	RFETS	Solidified Inorganics	211	7	5.00 U	0.14 U	2.50 U	0.50 JD	0.13 U	0.16	0.12 U	5.00 U	0.12 U
003129	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	1.50 J	0.03 U	0.08 J	0.07	0.02 U	5.00 U	0.04 J
003130	RFETS	Solidified Inorganics	211	7	5.00 U	0.04 U	1.90 JD	0.06 U	0.08 JD	0.10	0.04 U	5.00 U	0.10 JD
003173	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	1.80	0.02 U	0.14 J	0.07	0.02 U	5.00 U	0.32
003181	RFETS	Solidified Inorganics	211	7	5.00 U	0.01 U	0.18 J	0.02 U	0.07 J	0.02	0.01 U	5.00 U	0.01 J
003189	INEL	Solidified Organics	212	3	17.00 U	82.00 U	4100.0	77.00 U	15000	85.00 U	78.00 U	17.00 U	78.00 U
003192	RFETS	Solidified Inorganics	211	7	5.00 U	0.23 U	46.00 U	0.33 U	0.62 J	0.26	0.21 U	5.00 U	0.21 U
003215	RFETS	Solidified Inorganics	211	7	5.00 U	0.01 U	1.00 J	0.02 U	0.07 J	0.02	0.06 J	5.00 U	0.03 J
003277	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 J	0.14 J	0.01 U	0.17	0.10	0.01 U	5.00 U	0.04 J
003394	RFETS	Solidified Inorganics	211	7	5.00 U	0.03 U	4.70 J	0.04 U	0.12 J	0.03	0.03 U	5.00 U	0.10 J
003406	RFETS	Solidified Inorganics	211	7	5.00 U	0.01 U	0.80 J	0.01 U	0.13	0.03	0.01 J	5.00 U	0.02 J
003455	RFETS	Solidified Inorganics	211	3	5.70 J	250.00 U	21000 U	350.00 U	43000	290.00	230.00 U	5.00 U	230.00 U
003547	RFETS	Solidified Inorganics	211	7	5.00 U	0.09 U	15.00 J	0.13 U	0.12 J	0.10	0.08 U	5.00 U	0.15 J
003577	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 U	0.10 J	0.36	0.11 J	0.06	0.10 J	5.00 U	0.03 J
003854	INEL	Solidified Organics	212	3	17.00 U	50.00	1800.0	35.00 U	6700.0	39.00 U	36.00 U	17.00 U	36.00 U
003890	INEL	Solidified Inorganics	111	7	5.00 U	0.03 U	0.92	0.08 J	0.19 J	0.06 J	0.03 U	5.00 U	0.03 U
003921	INEL	Solidified Inorganics	111	7	5.00 U	0.03 U	2.90	0.05 U	0.32 J	0.04 U	0.03 U	5.00 U	0.03 U
003991	INEL	Combustible	223	339	17.00 U	0.13 J	0.05 J	0.02 U	0.03 J	0.06 J	0.02 J	17.00 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
003997	INEL	Combustible	223	339	15.00 U	0.23 J	0.13 J	0.04 U	0.04 U	0.29 J	0.39 J	15.00 U	0.05 U
004099	INEL	Solidified Inorganics	211	1	5.00 U	0.10 J	0.25	0.02 U	0.01 J	0.12 J	0.01 U	5.00 U	0.02 J
004111	RFETS	Salt Waste	224	411	5.00 U	0.06 J	0.12 U	0.13 J	0.10 JB	0.06	0.03 U	5.00 U	0.03 U
004112	INEL	Graphite	215	300	17.00 U	0.01 U	0.09 J	0.02 U	0.03 J	0.01 U	0.02 U	17.00 U	0.02 U
004123	INEL	Combustible	223	339	17.00 U	0.10 J	0.09 J	0.02 U	0.06 J	0.08 J	0.17 J	17.00 U	0.02 U
004125	INEL	Uncategorized Metal	217	480	17.00 U	0.03 U	0.05 J	0.04 U	0.05 J	0.07 J	0.03 U	17.00 U	0.03 U
004150	INEL	Graphite	215	300	17.00 U	0.02 U	0.11 J	0.02 U	0.08 J	0.02 U	0.02 U	17.00 U	0.02 U
004160	INEL	Combustible	223	339	17.00 U	580.00	290.00	120.00 U	25000	78.00 U	110.00 U	17.00 U	130.00 U
004166	INEL	Inorganic Non-metal	222	371	17.00 U	0.03 U	0.28 J	0.04 U	0.26 J	0.05 J	0.03 U	17.00 U	0.03 U
004186	INEL	Combustible	223	339	17.00 U	0.29 J	0.06 J	0.11 J	1.20	0.07 J	0.11 J	17.00 U	0.02 U
004195	RFETS	Salt Waste	224	411	5.00 U	0.01 U	0.11 J	0.14	0.16 B	0.01	0.01 U	5.00 U	0.02 J
004196	INEL	Graphite	215	300	17.00 U	0.03 J	0.13 J	0.02 U	0.07 J	0.08 J	0.03 J	17.00 U	0.02 U
004206	INEL	Combustible	223	339	15.00 U	0.36 J	0.13 J	0.18 J	0.05 J	0.19 J	0.26 J	15.00 U	0.02 U
004208	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	0.03 J	0.01 U	0.02 U	17.00 U	0.02 U
004283	INEL	Solidified Inorganics	211	1	17.00 U	0.02 U	0.17 J	0.29 J	0.12 J	0.14 J	0.02 U	17.00 U	0.02 U
004326	INEL	Solidified Inorganics	213	4	17.00 U	0.02 J	0.23 J	0.02 U	0.39 J	0.09 J	0.02 U	17.00 U	0.02 J
004393	INEL	Solidified Inorganics	211	1	5.00 U	0.02 U	0.43	0.02 U	0.08 J	0.08 J	0.02 U	5.00 U	0.02 U
004410	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	0.28 J	0.04 U	0.20 J	0.11 J	0.03 U	5.00 U	0.03 U
004495	INEL	Solidified Inorganics	213	4	17.00 U	0.02 U	0.15 J	0.23 J	0.19 J	0.02 U	0.02 U	17.00 U	0.02 J
004516	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	0.21 J	0.09 J	0.12 J	0.60	0.03 U	5.00 U	0.03 U
004884	INEL	Solidified Inorganics	213	4	51.00 U	0.03 U	0.59 J	6.10	0.60 J	0.54 J	0.03 U	51.00 U	0.03 U
004963	INEL	Combustible	223	339	17.00 U	7.10	0.19 J	0.07 U	13.00	0.91 J	0.40 J	17.00 U	0.07 U
004968	RFETS	Uncategorized Metal	217	320	22.00 J	0.55 U	1.70 U	0.78 U	2.90 J	0.63	0.50 U	5.00 U	0.50 U
004981	RFETS	Uncategorized Metal	217	320	5.00 U	0.01 J	0.39 J	0.01 U	0.49	0.01	0.01 U	5.00 U	0.01 J
004988	RFETS	Salt Waste	224	411	5.00 U	0.06 J	0.30 J	0.04 U	0.10 JB	0.09	0.03 U	5.00 U	0.32 J

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
005006	RFETS	Salt Waste	224	411	5.00 U	0.04 J	0.39	0.04 U	0.07 JB	0.10	0.03 U	5.00 U	0.42
005012	INEL	Combustible	223	339	17.00 U	0.06 J	0.18 J	0.02 U	0.18 J	0.04 J	0.04 J	17.00 U	0.02 J
005015	INEL	Solidified Organics	226	432	17.00 U	1.40 U	82.00	2.00 U	1.40 U	1.60 U	1.30 U	17.00 U	230.00
005235	INEL	Solidified Organics	226	432	17.00 U	0.28 J	0.61 JB	0.04 U	0.38 J	1.30	0.03 U	17.00 U	0.03 U
005262	INEL	Solidified Organics	212	3	17.00 U	230.00 U	33000	220.00 U	52000	240.00 U	220.00 U	17.00 U	220.00 U
005358	INEL	Solidified Inorganics	211	1	17.00 U	0.03 J	0.30 J	0.80 J	0.23 J	1.00	0.02 U	17.00 U	0.02 U
005398	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	4.90	0.04 U	0.07 J	0.04 J	0.03 U	5.00 U	0.03 U
005415	INEL	Solidified Inorganics	211	1	5.00 U	0.03 U	0.16 J	0.10 J	0.09 J	0.31 J	0.03 U	5.00 U	0.03 U
005530	INEL	Graphite	215	303	17.00 U	0.07 J	0.11 J	0.02 U	0.06 J	0.05 J	0.02 J	17.00 U	0.02 U
005535	INEL	Solidified Organics	226	432	17.00 U	0.06 U	0.17 JD	0.16 JD	0.17 JD	2.80 D	0.05 U	17.00 U	0.05 U
005735	INEL	Solidified Inorganics	211	7	5.00 U	0.03 U	0.56	0.16 J	0.08 J	0.04 J	0.03 U	5.00 U	0.03 U
005738	INEL	Solidified Inorganics	211	7	5.00 U	0.02 U	0.29	0.03 U	0.08 J	0.02 U	0.02 U	5.00 U	0.02 U
006242	INEL	Inorganic Non-metal	222	371	17.00 U	3.70	0.26 J	0.04 U	0.28 J	0.03 U	0.04 J	17.00 U	0.03 J
006252	RFETS	Lead/Cadmium Metal	123	339	5.00 U	9.20 JD	5.80 U	5.20 U	460.00 D	4.20	3.30 U	5.00 U	3.40 U
006325	RFETS	Solidified Inorganics	213	4	100.00 U	0.01 U	0.12 J	0.70	0.11 J	0.33	0.01 U	100.00 U	0.08 J
006669	INEL	Solidified Inorganics	214	292	5.00 U	0.14 U	0.33 J	1.20 J	0.37 J	0.16 U	0.13 U	5.00 U	0.22 J
006773	RFETS	Solidified Inorganics	213	4	120.00 U	0.10 U	18.00 J	20.00	0.17 J	0.40	0.09 U	120.00 U	0.18 J
006857	INEL	Combustible	223	339	17.00 U	0.34 J	0.11 J	0.02 U	0.70 J	0.15 J	0.26 J	17.00 U	0.04 J
006865	RFETS	Solidified Organics	226	432	5.00 U	0.07 U	0.66 J	0.63 J	0.88 J	1.40	0.07 U	5.00 U	0.08 J
006876	INEL	Filter	219	335	17.00 U	0.04 J	0.03 J	0.06 J	0.02 J	0.34 J	0.12 J	17.00 U	0.02 U
006879	INEL	Solidified Organics	226	432	17.00 U	0.09 U	0.17 J	0.18 J	0.16 J	0.99 J	0.08 U	17.00 U	0.09 U
006886	INEL	Solidified Organics	226	432	17.00 U	0.31 U	12.00 B	2.60	0.30 U	0.54 J	0.28 U	17.00 U	57.00
007034	INEL	Combustible	216	337	15.00 U	210.00	290.00	2.80 U	1.90 U	2.30 U	1.80 U	15.00 U	310.00
007146	INEL	Inorganic Non-metal	222	371	17.00 U	1.60 U	150.00	2.30 U	1.60 U	1.80 U	1.40 U	17.00 U	280.00
007170	INEL	Combustible	216	337	18.00 U	0.25 U	71.00	0.35 U	0.34 U	0.22 U	0.31 U	18.00 U	92.00

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
007231	INEL	Filter	219	338	17.00 U	0.11 U	21.00	0.16 U	0.15 U	0.10 U	0.90 J	17.00 U	6.20
007511	INEL	Inorganic Non-metal	122	374	17.00 U	0.04 U	0.48	0.06 J	0.35 J	0.04 U	0.03 U	17.00 U	0.03 U
007518	INEL	Inorganic Non-metal	122	374	17.00 U	0.12 J	0.44 J	0.08 U	0.16 J	1.30	0.10 J	17.00 U	0.05 U
007667	INEL	Salt Waste	124	411	5.00 U	0.01 J	0.10 J	0.01 U	0.12	0.02 J	0.01 U	5.00 U	0.01 U
007920	INEL	Filter	121	302	17.00 U	0.22 U	1.80 J	0.72 J	0.22 U	0.26 U	0.20 U	17.00 U	0.29 J
008203	INEL	Inorganic Non-metal	118	440	17.00 U	0.06 U	0.10 J	0.20 J	0.13 J	0.39 J	0.05 U	17.00 U	0.05 U
008207	INEL	Heterogeneous	116	336	20.00 J	0.87 U	0.27 J	0.10 U	0.12 J	2.00 J	1.30 U	17.00 U	0.06 U
008218	INEL	Heterogeneous	116	330	17.00 U	1.70	0.20 J	0.10 U	0.16 J	1.30	0.84 J	17.00 U	0.06 U
008269	INEL	Uncategorized Metal	117	320	17.00 U	0.18 U	0.28 U	0.64 JD	0.32 JD	0.21 U	0.16 U	17.00 U	0.16 U
008287	INEL	Inorganic Non-metal	122	374	17.00 U	0.03 U	0.20 J	0.09 J	0.16 J	0.03 U	0.03 U	17.00 U	0.03 U
008359	INEL	Heterogeneous	116	330	17.00 U	1.50 J	0.28 U	0.73 J	0.18 U	2.70	2.00 J	17.00 U	0.16 U
008383	INEL	Lead/Cadmium Metal	123	339	6.10 J	13.00 J	1000.0	7.00 U	930.00	5.60 U	4.50 U	5.00 U	4.50 U
008848	INEL	Inorganic Non-metal	218	440	17.00 U	22.00	36.00	0.20 U	0.47 J	0.22 U	0.20 U	17.00 U	1.30
008859	INEL	Inorganic Non-metal	218	440	17.00 U	1.10	11.00	0.59 U	66.00	0.48 U	0.38 U	17.00 U	0.80 J
008860	INEL	Uncategorized Metal	217	480	17.00 U	1.10 U	160.00	1.50 U	1.00 U	1.20 U	0.96 U	17.00 U	4.30
008864	INEL	Uncategorized Metal	217	480	17.00 U	0.09 U	20.00	0.13 U	0.14 J	0.11 U	0.08 U	17.00 U	0.98 J
008872	INEL	Solidified Inorganics	214	292	5.00 U	0.04 U	0.23 J	0.31 J	0.12 J	0.09 J	0.03 U	5.00 U	0.06 J
008874	RFETS	Uncategorized Metal	217	480	12.00 J	33.00 U	5400.0 U	46.00 U	32.00 U	38.00	30.00 U	5.00 U	30.00 U
008878	INEL	Uncategorized Metal	217	480	17.00 U	4.50 U	580.00	6.30 U	4.30 U	5.10 U	4.00 U	17.00 U	4.10
008880	RFETS	Graphite	115	312	5.00 U	1.60 J	250.00 J	1.80 U	1.20 J	1.50	1.20 U	5.00 U	3.00 J
009006	INEL	Solidified Inorganics	211	7	17.00 U	0.04 J	0.63 J	0.02 U	0.18 J	0.08 J	0.02 U	17.00 U	0.02 U
009011	RFETS	Solidified Inorganics	211	7	5.00 U	0.01 U	2.30 JB	0.02 U	0.17 B	0.04	0.01 U	5.00 U	0.09 JB
009061	RFETS	Inorganic Non-metal	218	440	5.00 U	0.43 J	6.00	0.13 U	0.49 J	0.10	0.08 U	5.00 U	18.00
009180	INEL	Combustible	223	339	17.00 U	22.00	220.00	0.79 U	150.00	0.68 J	0.70 U	17.00 U	0.81 U
009225	INEL	Uncategorized Metal	217	481	17.00 U	0.03 U	2.20	0.04 U	0.03 J	0.03 U	0.03 U	17.00 U	0.03 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
009252	INEL	Combustible	223	339	17.00 U	1100.0	390.00	28.00 U	3700.0	22.00 U	18.00 U	17.00 U	18.00 J
009296	INEL	Combustible	223	339	17.00 U	2.80 U	2.50 U	740.00	2.70 U	3.20 U	4.10	17.00 U	2.50 U
009299	INEL	Combustible	223	339	17.00 U	0.10 J	1.10	0.03 J	0.02 U	0.04 J	0.11 J	17.00 U	0.02 U
009399	INEL	Inorganic Non-metal	218	440	17.00 U	1.30	37.00	0.52 U	83.00 E	0.42 U	0.33 U	17.00 U	2.10
009422	RFETS	Combustible	216	337	5.00 U	5.70 JD	920.00 JD	7.40 U	26.00 JD	6.00	4.70 U	5.00 U	5.20 JD
009423	INEL	Combustible	216	337	17.00 U	1.90 U	300.00	160.00	1.90 U	1.90 U	1.80 U	17.00 U	1.80 U
009435	INEL	Combustible	216	337	17.00 U	15.00	55.00	0.52 U	0.43 J	0.42 U	0.33 U	17.00 U	0.33 U
009449	INEL	Inorganic Non-metal	218	440	17.00 U	3.10	0.23 J	0.06 U	0.66 J	0.36 J	0.06 J	17.00 U	0.04 U
009471	INEL	Combustible	216	337	18.00 U	4.50	24.00	0.08 U	0.08 U	0.50 U	0.07 U	18.00 U	0.08 U
009475	INEL	Inorganic Non-metal	218	442	17.00 U	0.74 U	140.00	0.70 U	0.77 U	1.10	0.71 U	17.00 U	0.71 U
009489	INEL	Combustible	216	337	18.00 U	4.60	59.00	0.20 U	0.20 U	0.13 U	0.18 U	18.00 U	0.21 U
009587	INEL	Uncategorized Metal	117	320	5.00 U	0.01 J	0.24	0.15	0.24	0.01 U	0.01 U	5.00 U	0.01 J
009591	INEL	Inorganic Non-metal	118	440	17.00 U	0.04 U	0.09 J	0.05 U	0.10 J	0.05 J	0.03 U	17.00 U	0.03 U
009592	INEL	Inorganic Non-metal	118	440	17.00 U	0.07 U	0.11 J	0.14 J	0.13 J	0.26 J	0.06 U	17.00 U	0.06 U
009596	INEL	Uncategorized Metal	117	320	17.00 U	0.13 U	17.00	0.18 U	0.25 J	0.15 U	0.12 U	17.00 U	0.54 J
009599	INEL	Inorganic Non-metal	118	440	17.00 U	0.11 J	0.33 J	0.04 U	0.18 J	0.37	0.04 J	17.00 U	0.03 U
009602	INEL	Inorganic Non-metal	218	442	17.00 U	1.90 U	250.00	2.70 U	1.80 U	2.20 U	1.70 U	17.00 U	1.70 U
009694	INEL	Graphite	215	300	17.00 U	0.02 U	0.18 J	0.02 U	0.15 J	0.02 U	0.02 U	17.00 U	0.02 U
009735	INEL	Graphite	215	300	17.00 U	0.02 U	0.12 J	0.02 U	0.06 J	0.02 U	0.02 U	17.00 U	0.22 J
009773	INEL	Combustible	223	339	17.00 U	74.00	450.00	5.20 U	1300.0	5.80 U	5.30 U	17.00 U	5.30 U
009787	RFETS	Solidified Organics	212	3	5.00 U	180.00 J	10000 U	240.00 U	32000 B	200.00	160.00 U	5.00 U	160.00 U
009873	RFETS	Solidified Inorganics	211	1	5.00 U	0.05 U	8.10 U	0.06 U	0.20 J	0.16	0.04 U	5.00 U	0.04 U
010216	INEL	Filter	219	338	17.00 U	0.70 U	88.00	0.99 U	5.60	0.62 U	0.89 U	17.00 U	260.00
010224	INEL	Filter	219	338	17.00 U	0.21 U	42.00	0.30 U	0.29 U	0.19 U	0.78 J	17.00 U	20.00
010230	INEL	Heterogeneous	216	330	17.00 U	0.11 U	200.00 E	0.16 U	0.76 J	2.20	0.34 J	17.00 U	290.00 E

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
010273	INEL	Combustible	216	337	18.00 U	4.40	37.00	0.14 U	0.14 U	0.09 U	0.13 U	18.00 U	0.15 U
010295	INEL	Inorganic Non-metal	218	442	17.00 U	0.40 J	7.00	0.08 U	0.26 J	0.10 J	0.24 J	17.00 U	0.05 U
010305	RFETS	Inorganic Non-metal	218	442	5.00 U	0.66 U	110.00 U	0.93 U	0 66 J	0.75	0.59 U	5.00 U	0.60 U
010364	RFETS	Combustible	216	337	5.00 U	5.20 J	120.00 U	1.20 U	0.81 U	0.95	0.75 U	5.00 U	0.76 U
010371	INEL	Combustible	216	337	1.00 U	46.00	140.00 E	350.00 E	0.75 J	0.42 J	0.34 U	1.20 U	0.75 J
010407	RFETS	Uncategorized Metal	217	480	16.00 J	0.73 J	13.00 J	0.16 U	6.30	0.16	0.10 U	5.00 U	0.12 J
010411	INEL	Combustible	216	337	17.00 U	78.00	140.00	120.00	1.80 U	2.10 U	1.70 U	17.00 U	1.70 U
010415	INEL	Inorganic Non-metal	218	442	17.00 U	0.03 U	4.00	0.04 U	0.18 J	0.03 U	0.03 U	17.00 U	0.03 U
010426	INEL	Inorganic Non-metal	218	442	17.00 U	0.41 J	12.00 E	0.02 U	0.26 J	0.08 J	0.30 J	17.00 U	0.02 J
010463	INEL	Solidified Inorganics	213	4	34.00 U	0.28 U	40.00 J	0.40 U	0.35 J	0.32 U	0.25 U	34.00 U	0.25 U
010487	INEL	Salt Waste	224	414	17.00 U	2.30 J	23.00	0.72 U	50.00	0.58 U	0.46 U	17.00 U	0.46 U
010492	INEL	Uncategorized Metal	217	480	17.00 U	0.55 U	74.00	0.77 U	0.53 U	0.63 U	0.49 U	17.00 U	0.50 U
010498	INEL	Uncategorized Metal	217	480	17.00 U	0.37 J	12.00	0.04 U	0.09 J	0.49 J	0.13 J	17.00 U	0.04 U
010510	RFETS	Heterogeneous	216	336	5.00 U	9.40 J	240.00 B	18.00 J	3.80 JB	1.80	1.40 U	5.00 U	340.00 B
010546	RFETS	Heterogeneous	216	330	16.00 J	44.00 U	6600.0 B	62.00 U	42.00 U	50.00	40.00 U	10.00 U	1600.0 B
010578	INEL	Solidified Organics	226	432	17.00 U	0.95 U	65.00	1.40 U	0.92 U	1.10 U	0.86 U	17.00 U	200.00
010588	RFETS	Solidified Inorganics	211	2	5.00 U	0.82 U	76.00	1.20 U	0.84 J	0.94	0.74 U	5.00 U	160.00
010663	INEL	Combustible	216	337	18.00 U	0.36 U	110.00	0.51 U	0.49 U	0.32 U	0.46 U	18.00 U	140.00
010676	INEL	Heterogeneous	216	330	18.00 U	0.29 U	92.00	0.41 U	0.49 J	0.95 J	0.37 U	18.00 U	110.00
010800	INEL	Filter	219	338	17.00 U	0.10 U	23.00	0.14 U	0.13 U	0.14 J	0.12 U	17.00 U	42.00
010807	INEL	Combustible	216	337	17.00 U	1.20 U	120.00	1.80 U	1.20 U	1.40 U	1.10 U	17.00 U	240.00
010808	INEL	Combustible	216	337	17.00 U	3.60	53.00	21.00	0.40 U	0.41 U	0.37 U	17.00 U	120.00
010814	RFETS	Solidified Inorganics	211	1	5.00 U	0.33 U	53.00 E	0.47 U	0.80 JB	0.38	0.30 U	5.00 U	96.00 E
010837	INEL	Solidified Organics	226	432	17.00 U	0.42 U	35.00	0.59 U	1.30 J	0.48 U	0.38 U	17.00 U	78.00
010848	INEL	Filter	219	338	15.00 U	0.28 U	100.00	0.39 U	0.37 U	0.24 U	0.92 J	15.00 U	95.00

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
010883	INEL	Solidified Organics	226	432	17.00 U	1.10 U	81.00	1.50 U	1.00 U	1.20 U	0.98 U	17.00 U	190.00
010921	INEL	Inorganic Non-metal	222	371	17.00 U	0.09 U	3.60	0.13 U	0.22 J	0.11 U	0.08 U	17.00 U	20.00
011004	INEL	Uncategorized Metal	217	480	17.00 U	0.03 U	10.00 E	0.04 U	0.13 J	0.03 U	0.03 U	17.00 U	0.03 U
011021	INEL	Solidified Organics	226	432	17.00 U	0.17 U	7.20	0.24 U	0.19 J	7.50	0.15 U	17.00 U	0.29 J
011042	INEL	Inorganic Non-metal	218	442	17.00 U	0.59 U	83.00	0.83 U	0.57 U	0.67 U	0.53 U	17.00 U	0.53 U
011044	INEL	Inorganic Non-metal	218	440	17.00 U	0.98 J	22.00	0.48 U	63.00	0.38 U	0.30 U	17.00 U	0.30 U
011067	RFETS	Solidified Inorganics	213	4	5.00 U	1.10 U	190.00 U	1.60 U	1.70 J	1.30	1.00 U	5.00 U	1.00 U
011102	RFETS	Solidified Inorganics	211	1	5.00 U	0.26 U	54.00 U	0.37 U	2.70 J	0.30	0.24 U	5.00 U	0.24 U
011109	INEL	Solidified Inorganics	211	1	17.00 U	0.22 U	44.00	0.21 U	0.23 U	0.23 U	0.21 U	17.00 U	0.78 J
011147	INEL	Solidified Inorganics	213	4	94.00 U	0.26 U	56.00	0.24 U	0.27 J	0.26 U	0.24 U	94.00 U	0.24 U
011173	INEL	Uncategorized Metal	217	480	17.00 U	19.00	11.00	0.06 U	5.50	0.37 J	0.07 J	17.00 U	0.48 J
011194	INEL	Inorganic Non-metal	218	442	17.00 U	0.07 U	14.00	0.10 U	0.39 J	0.08 U	0.06 U	17.00 U	2.40
011393	INEL	Uncategorized Metal	217	480	17.00 U	0.14 U	22.00	0.20 U	0.17 J	0.16 U	0.13 U	17.00 U	1.00
011416	INEL	Combustible	216	337	17.00 U	0.61 U	82.00	0.87 U	0.83 J	0.70 U	0.56 U	17.00 U	90.00
011433	INEL	Heterogeneous	216	330	18.00 U	0.36 U	75.00	0.51 U	0.49 U	0.48 J	0.46 U	18.00 U	150.00
011498	RFETS	Solidified Organics	226	432	17.00 U	1.60 U	140.00	2.30 U	1.60 U	1.80	1.40 U	17.00 U	270.00
011529	INEL	Uncategorized Metal	217	480	17.00 U	0.03 U	0.66 J	0.04 U	0.06 J	0.03 U	0.03 U	17.00 U	0.03 U
011601	INEL	Heterogeneous	216	336	17.00 U	0.85 U	160.00	1.20 U	1.20 U	0.75 U	1.10 U	17.00 U	260.00
011607	INEL	Heterogeneous	216	330	17.00 U	3.50	5.80	0.03 U	0.13 J	0.06 J	0.03 U	17.00 U	0.14 J
011637	RFETS	Filter	219	338	5.00 U	0.82 U	120.00 D	1.20 U	0.80 U	0.94	0.74 U	5.00 U	150.00 D
011735	INEL	Heterogeneous	216	330	17.00 U	0.84 U	85.00	1.20 U	2.90	0.96 U	0.76 U	17.00 U	130.00
011749	INEL	Inorganic Non-metal	225	441	17.00 U	0.24 U	39.00	0.34 U	0.65 J	0.27 U	0.22 U	17.00 U	5.50
011785	RFETS	Solidified Inorganics	211	1	5.00 U	0.03 U	0.15 U	0.04 J	0.50	0.13	0.03 U	5.00 U	0.03 U
012021	INEL	Solidified Inorganics	211	1	17.00 U	0.36 U	45.00	0.52 U	0.35 U	0.42 U	0.33 U	17.00 U	18.00
012108	INEL	Solidified Inorganics	214	292	17.00 U	0.36 U	40.00	0.52 U	0.35 U	0.42 U	0.33 U	17.00 U	2.00 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
012111	INEL	Combustible	216	337	18.00 U	1.20 U	160.00	590.00	1.60 U	1.00 U	1.50 U	18.00 U	1.70 U
012215	INEL	Uncategorized Metal	217	480	17.00 U	0.39 U	56.00	0.55 U	0.38 U	0.45 U	0.35 U	17.00 U	9.80
012313	INEL	Heterogeneous	216	336	18.00 U	7.80	92.00	30.00	0.59 U	0.38 U	0.55 U	18.00 U	110.00
012320	INEL	Heterogeneous	216	336	17.00 U	12.00	200.00	2.60 U	1.80 U	2.10 U	1.70 U	17.00 U	300.00
012356	INEL	Filter	219	338	17.00 U	0.26 U	41.00	0.24 U	0.27 U	0.27 U	1.50	17.00 U	29.00
012357	RFETS	Uncategorized Metal	217	480	5.00 U	3.00 U	190.00	4.20 U	2.90 U	3.40	2.70 U	5.00 U	610.00
012433	INEL	Filter	219	338	17.00 U	0.72 J	44.00	0.20 U	36.00	0.12 U	0.21 J	17.00 U	61.00
012469	RFETS	Solidified Inorganics	211	1	5.00 U	0.34 U	23.00	0.48 U	0.57 J	0.38	0.30 U	5.00 U	60.00
012471	RFETS	Filter	219	338	5.00 U	0.56 J	35.00	0.25 U	0.17 U	0.91	0.16 U	5.00 U	10.00
012487	INEL	Inorganic Non-metal	218	440	17.00 U	0.15 J	2.90	2.40	0.19 J	0.06 J	0.02 U	17.00 U	19.00 E
012494	INEL	Heterogeneous	216	330	17.00 U	1.10	85.00	1.60 U	14.00	2.30	1.00 U	17.00 U	160.00
012541	INEL	Inorganic Non-metal	218	442	17.00 U	0.03 U	8.40 E	0.04 U	0.19 J	0.03 U	0.03 U	17.00 U	2.90
012553	INEL	Solidified Inorganics	211	1	17.00 U	0.03 U	6.70 E	0.04 U	0.17 J	0.03 U	0.03 U	17.00 U	0.06 J
012571	INEL	Uncategorized Metal	217	320	17.00 U	0.08 J	0.33 J	0.02 U	0.12 J	0.02 U	0.02 U	17.00 U	0.03 J
012611	INEL	Solidified Inorganics	211	1	17.00 U	0.59 U	66.00	0.83 U	0.57 U	0.67 U	0.53 U	17.00 U	0.53 U
012634	INEL	Solidified Inorganics	211	1	17.00 U	1.60 U	220.00	2.30 U	1.60 U	1.80 U	1.40 U	17.00 U	1.40 U
012749	INEL	Solidified Inorganics	211	1	17.00 U	0.31 U	40.00	0.44 U	0.30 U	0.35 U	0.28 U	17.00 U	6.80
012766	INEL	Heterogeneous	216	336	17.00 U	2.80 U	310.00	4.00 U	4.00	3.20 U	2.50 U	17.00 U	400.00
012802	INEL	Combustible	216	337	17.00 U	1.40 U	250.00	1.30 U	42.00	1.40 U	1.30 U	17.00 U	340.00
012875	RFETS	Solidified Organics	226	432	17.00 U	3.80 U	310.00	5.30 U	3.70 U	4.30	3.40 U	17.00 U	630.00
012878	INEL	Uncategorized Metal	217	480	17.00 U	0.71 U	48.00	0.66 U	0.73 U	0.73 U	0.67 U	17.00 U	210.00
012891	INEL	Heterogeneous	216	330	17.00 U	0.32 U	44.00	0.46 U	0.44 J	0.37 U	0.29 U	17.00 U	51.00
012902	INEL	Filter	219	338	17.00 U	0.01 U	0.49 J	0.02 U	0.02 U	0.01 U	0.02 U	17.00 U	0.70 J
012920	INEL	Inorganic Non-metal	222	371	17.00 U	1.10 U	11.00	1.60 U	1.10 U	1.30 U	1.00 U	17.00 U	180.00
012985	INEL	Inorganic Non-metal	222	371	17.00 U	1.90 U	200.00	2.60 U	1.80 U	2.10 U	1.70 U	17.00 U	390.00

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
012986	INEL	Heterogeneous	221	302	17.00 U	0.62 U	120.00	0.58 U	0.63 U	0.64 U	0.58 U	17.00 U	170.00
012998	INEL	Combustible	216	337	17.00 U	0.64 U	50.00	0.91 U	0.98 J	0.74 U	0.58 U	17.00 U	97.00
013106	INEL	Solidified Inorganics	111	7	5.00 U	0.01 U	0.85	0.02 U	0.23	0.02 U	0.01 U	5.00 U	0.05 J
013229	RFETS	Solidified Organics	226	432	17.00 U	0.14 U	0.12 U	0.32 J	0.14 U	0.27	0.13 U	17.00 U	0.13 U
013231	INEL	Graphite	215	300	17.00 U	0.01 U	0.05 J	0.02 U	0.02 J	0.01 U	0.02 U	17.00 U	0.02 U
013252	INEL	Inorganic Non-metal	222	371	17.00 U	0.16 J	0.25 J	0.04 U	0.22 J	0.03 U	0.03 U	17.00 U	0.03 U
013266	INEL	Combustible	223	339	17.00 U	16.00	0.45 J	0.55 U	65.00	0.45 U	0.35 U	17.00 U	0.36 U
013269	INEL	Inorganic Non-metal	218	440	17.00 U	0.06 U	12.00	0.06 U	0.09 J	0.06 U	0.06 U	17.00 U	0.10 J
013313	INEL	Inorganic Non-metal	218	440	17.00 U	0.08 J	0.25 J	0.04 U	0.24 J	0.03 U	0.03 U	17.00 U	0.03 U
013331	INEL	Salt Waste	124	411	17.00 U	0.07 U	0.12 J	0.10 U	0.10 J	0.26 J	0.06 U	17.00 U	0.06 U
013342	INEL	Inorganic Non-metal	218	440	17.00 U	0.02 U	0.10 J	0.15 J	1.20	0.15 J	0.02 U	17.00 U	0.02 U
013346	RFETS	Inorganic Non-metal	222	371	5.00 U	0.10 J	0.10 U	0.03 U	0.08 JB	0.02	0.02 U	5.00 U	0.02 U
013618	INEL	Heterogeneous	216	330	17.00 U	1.90 U	70.00	2.60 U	1.80 U	2.10 U	1.70 U	17.00 U	290.00
013677	INEL	Filter	219	338	17.00 U	0.04 U	13.00	0.05 U	0.05 J	0.13 J	0.11 J	17.00 U	3.70
013751	INEL	Uncategorized Metal	217	480	17.00 U	0.84 U	58.00	1.20 U	0.81 U	0.96 U	0.76 U	17.00 U	170.00
013763	INEL	Combustible	223	339	2.60 J	78.00	84.00	13.00 U	3800.0 E	13.00 U	14.00 U	1.20 U	15.00 U
013773	RFETS	Solidified Inorganics	111	7	5.00 U	0.07 U	11.00 U	0.10 U	0.09 JB	0.09	0.07 U	5.00 U	0.07 U
013818	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 U	0.25 U	0.03 U	0.10 JB	0.30	0.02 U	5.00 U	0.02 U
013820	RFETS	Solidified Inorganics	211	1	11.00 U	0.22 J	0.18 J	0.04 J	0.12 JB	0.16	0.02 U	11.00 U	0.04 J
013847	INEL	Graphite	215	300	17.00 U	0.02 U	0.08 J	0.02 U	0.03 J	0.02 U	0.02 U	17.00 U	0.02 U
013860	INEL	Combustible	223	339	17.00 U	0.68 J	19.00	0.07 U	1.00	0.62 J	0.36 J	17.00 U	0.07 U
013876	RFETS	Solidified Inorganics	211	7	5.00 U	0.09 U	6.90 U	0.13 U	13.00	0.10	0.08 U	5.00 U	0.08 U
014007	INEL	Solidified Inorganics	211	1	17.00 U	0.02 U	0.16 J	0.02 U	0.10 J	0.06 J	0.02 U	17.00 U	0.03 J
014009	INEL	Solidified Inorganics	211	7	17.00 U	0.08 U	22.00	0.07 U	0.41 J	0.10 J	0.07 U	17.00 U	0.07 U
014010	INEL	Solidified Inorganics	211	7	17.00 U	0.02 U	6.00	0.02 U	0.07 J	0.06 J	0.02 U	17.00 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
014127	RFETS	Solidified Inorganics	211	7	5.00 U	0.02 U	0.83 J	0.02 U	0.09 J	0.05	0.02 U	5.00 U	0.03 J
014170	INEL	Solidified Inorganics	211	7	5.00 U	0.02 J	0.24	0.02 U	0.14 J	0.14 J	0.02 U	5.00 U	0.02 U
014330	INEL	Graphite	215	303	17.00 U	0.35 J	11.00	0.04 U	0.06 J	0.08 J	0.16 J	17.00 U	0.04 U
014334	INEL	Filter	219	335	1.30 U	0.06 U	0.34 J	0.09 J	0.13 J	0.05 U	0.06 U	1.30 U	0.06 U
014339	INEL	Solidified Organics	226	432	17.00 U	0.06 U	0.15 JD	0.31 JD	0.13 JD	0.65 JD	0.05 U	17.00 U	0.05 U
014342	INEL	Graphite	215	303	17.00 U	0.05 U	16.00	0.07 U	0.06 U	0.04 U	0.06 U	17.00 U	0.07 U
014345	INEL	Solidified Organics	226	432	17.00 U	0.05 U	0.23 JB	0.12 J	0.07 J	0.97 J	0.04 U	17.00 U	0.04 U
014346	INEL	Combustible	223	339	17.00 U	5.50	0.55 J	0.02 U	20.00 E	0.54 J	0.20 J	17.00 U	0.03 J
014348	INEL	Graphite	215	300	17.00 U	0.02 U	0.07 J	0.02 U	0.04 J	0.02 U	0.02 U	17.00 U	0.02 U
014354	RFETS	Uncategorized Metal	217	481	5.00 U	0.02 J	0.87 J	0.02 U	0.02 JB	0.01	0.01 U	5.00 U	0.04 J
014357	INEL	Combustible	223	339	2.10 J	48.00	820.00	85.00	3400.0 E	13.00 U	14.00 U	1.30 U	15.00 U
014387	INEL	Solidified Inorganics	211	7	17.00 U	0.02 U	4.30	0.02 U	0.07 J	0.22 J	0.02 U	17.00 U	0.38 J
014466	INEL	Heterogeneous	221	302	17.00 U	0.31 U	50.00	0.44 U	0.30 U	0.35 U	0.28 U	17.00 U	67.00
014484	INEL	Graphite	215	300	17.00 U	0.02 U	0.07 J	0.02 U	0.10 J	0.05 J	0.02 U	17.00 U	0.02 U
014502	RFETS	Solidified Inorganics	211	1	5.00 U	0.02 J	0.29 J	0.01 U	0.10	0.10	0.01 U	5.00 U	0.04 J
014504	RFETS	Solidified Inorganics	211	1	5.00 U	0.03 U	0.30 J	0.04 J	0.16 J	0.46	0.03 U	5.00 U	0.04 J
014773	INEL	Solidified Inorganics	214	292	5.00 U	0.05 U	0.18 J	0.16 J	0.26 J	0.06 U	0.05 U	5.00 U	0.08 J
015228	RFETS	Solidified Organics	226	432	17.00 U	0.17 U	30.00	0.24 U	0.25 J	1.30	0.15 U	17.00 U	1.50
015231	INEL	Inorganic Non-metal	218	440	17.00 U	0.45 J	1.30	0.04 U	0.25 J	0.08 J	0.07 J	17.00 U	0.03
015241	INEL	Inorganic Non-metal	218	442	17.00 U	0.05 U	13.00 E	0.07 U	0.32 J	0.06 U	0.04 U	17.00 U	0.14 J
015249	INEL	Graphite	215	300	17.00 U	0.06 J	2.10	0.02 U	0.07 J	0.01 U	0.02 U	17.00 U	0.02 U
015262	RFETS	Solidified Organics	226	432	17.00 U	1.60 U	230.00 U	2.30 U	1.60 U	3.60	1.40 U	17.00 U	1.40 U
015267	INEL	Uncategorized Metal	217	480	17.00 U	1.40 U	180.00	2.00 U	1.40 U	1.60 U	1.30 U	17.00 U	1.30 U
015338	INEL	Solidified Inorganics	211	7	17.00 U	0.01 U	3.20	0.02 U	0.02 U	0.07 J	0.02 U	17.00 U	0.02 U
015434	RFETS	Solidified Organics	226	432	17.00 U	0.04 U	5.40 J	0.06 U	0.14 J	0.89	0.04 U	17.00 U	0.09 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
015440	RFETS	Solidified Organics	226	432	17.00 U	0.36 U	53.00 J	0.52 U	0.35 U	5.40	0.33 U	17.00 U	0.78 J
015515	RFETS	Solidified Organics	212	3	5.00 U	26.00 U	210.00 U	38.00 U	4400.0	30.00	24.00 U	5.00 U	24.00 U
015532	RFETS	Solidified Organics	212	3	5.00 U	81.00 U	6600.0 U	120.00 U	15000	93.00	73.00 U	5.00 U	74.00 U
015543	INEL	Solidified Organics	212	3	17.00 U	35.00 U	620.00	49.00 U	6000.0	40.00 U	32.00 U	17.00 U	32.00 U
015627	INEL	Graphite	215	300	17.00 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	17.00 U	0.10 J
015655	INEL	Solidified Inorganics	211	7	17.00 U	0.02 U	0.87 J	0.02 U	0.03 J	0.02 U	0.02 U	17.00 U	0.04 J
015674	INEL	Graphite	215	300	17.00 U	0.07 J	3.20	0.02 U	0.19 J	0.02 U	0.02 U	17.00 U	0.02 U
015675	INEL	Uncategorized Metal	217	480	17.00 U	0.07 U	15.00	0.10 U	0.07	0.15 J	0.07 J	17.00 U	0.25 J
015777	RFETS	Solidified Organics	226	432	17.00 U	0.07 U	12.00 J	0.10 U	0.18 J	4.50	0.06 U	17.00 U	0.08 J
015785	RFETS	Solidified Inorganics	211	1	15.00 U	0.32 U	50.00 J	0.46 U	2.10 JB	0.37	0.29 U	15.00 U	0.37 J
015786	INEL	Solidified Inorganics	211	1	17.00 U	0.03 U	6.40	0.03 U	0.07 J	0.30 J	0.03 U	17.00 U	0.09 J
016242	INEL	Graphite	215	300	17.00 U	0.02 U	0.09 J	0.02 U	0.10 J	0.02 U	0.02 U	17.00 U	0.02 U
016612	INEL	Inorganic Non-metal	218	442	17.00 U	0.10 J	3.60	0.04 U	0.22 J	0.03 U	0.03 U	17.00 U	0.03 J
016613	INEL	Solidified Organics	226	432	17.00 U	0.20 U	7.40	0.28 U	2.00 J	0.22 U	0.18 U	17.00 U	0.18 U
016707	INEL	Graphite	215	300	17.00 U	0.02 U	0.04 J	0.02 U	0.02 U	0.02 U	0.02 U	17.00 U	0.02 U
016738	RFETS	Solidified Inorganics	211	7	5.00 U	1.20 U	250.00 JB	1.80 U	1.20 U	1.40	1.10 U	5.00 U	8.00 JB
016790	INEL	Graphite	215	300	17.00 U	0.02 U	12.00 E	0.12 J	0.03 J	0.05 J	0.02 J	17.00 U	1.50
016807	INEL	Solidified Inorganics	211	1	17.00 U	0.17 U	38.00	0.16 U	0.36 J	0.17 U	0.16 U	17.00 U	3.20
016842	INEL	Graphite	215	300	17.00 U	0.02 U	0.35 J	0.02 U	0.04 J	0.02 U	0.02 U	17.00 U	0.02 U
016855	RFETS	Solidified Organics	212	3	5.00 U	130.00 U	2200.0 U	180.00 U	16000 D	140.00	110.00 U	5.00 U	110.00 U
016869	INEL	Solidified Inorganics	211	7	17.00 U	0.19 U	40.00	0.17 U	0.19 U	0.19 U	0.18 U	17.00 U	0.45 J
016964	RFETS	Solidified Inorganics	211	7	5.00 U	1.10 U	170.00 J	1.60 U	1.10 U	1.30	0.99 U	5.00 U	5.90 J
016986	INEL	Inorganic Non-metal	218	442	17.00 U	0.17 U	26.00	0.24 U	0.28 J	0.19 U	0.15 U	17.00 U	2.90
017148	INEL	Solidified Organics	226	432	17.00 U	0.60 U	120.00	0.85 U	0.58 U	0.68 U	0.54 U	17.00 U	0.54 U
017190	INEL	Solidified Inorganics	211	7	17.00 U	3.70 U	680.00	3.50 U	3.80 U	3.90 U	3.50 U	17.00 U	3.50 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
017444	INEL	Graphite	215	300	17.00 U	0.03 U	3.60	0.04 U	0.09 J	0.03 U	0.03 U	17.00 U	0.09 J
017453	INEL	Solidified Organics	212	3	5.00 U	36.00 U	690.00 J	51.00 U	6300.0 J	41.00 U	33.00 U	5.00 U	33.00 U
017486	INEL	Solidified Inorganics	211	1	17.00 U	0.17 U	13.00	0.16 U	1.40	0.43 J	0.16 U	17.00 U	0.75 J
017491	INEL	Graphite	215	300	17.00 U	0.19 U	43.00	0.17 U	0.19 U	0.19 U	0.18 U	17.00 U	0.74 J
017495	INEL	Inorganic Non-metal	218	442	17.00 U	0.07 J	2.60	0.04 U	0.35 J	0.03 U	0.03 U	17.00 U	0.04 J
017496	INEL	Inorganic Non-metal	218	442	17.00 U	0.03 U	1.00	0.04 U	0.23 J	0.03 U	0.03 U	17.00 U	0.03
017698	RFETS	Solidified Inorganics	211	292	5.00 U	2.30 U	510.00 J	3.30 U	3.50 J	2.60	2.10 U	5.00 U	2.50 J
017709	INEL	Solidified Inorganics	211	1	17.00 U	0.02 U	4.70	0.02 U	0.25 J	0.04 J	0.02 U	17.00 U	0.14 J
017728	RFETS	Solidified Inorganics	211	1	5.00 U	0.66 U	61.00 U	0.93 U	3.00 JB	0.75	0.59 U	5.00 U	0.60 U
017742	INEL	Inorganic Non-metal	218	440	17.00 U	0.56 U	33.00	110.00	0.54 U	0.64 U	0.60 J	17.00 U	2.00
017756	RFETS	Solidified Organics	226	432	17.00 U	1.60 U	230.00 U	2.30 U	1.60 U	1.80	1.40 U	17.00 U	2.20 U
017759	INEL	Solidified Organics	226	432	17.00 U	1.10 U	240.00	1.60 U	1.10 U	1.30 U	1.00 U	17.00 U	1.00 U
017788	INEL	Solidified Inorganics	211	7	17.00 U	1.20 U	210.00	1.20 U	1.30 U	1.30 U	1.20 U	17.00 U	1.20 U
017863	INEL	Filter	119	376	17.00 U	0.09 U	0.35 J	0.23 J	0.16 J	0.11 U	0.13 J	17.00 U	0.08 U
018111	RFETS	Solidified Inorganics	211	1	5.00 U	0.01 U	2.20 J	0.02 U	0.47	0.02	0.01 U	5.00 U	0.02 J
018219	RFETS	Solidified Inorganics	211	7	5.00 U	1.10 U	160.00 J	1.60 U	1.10 U	1.20	0.99 U	5.00 U	4.10 J
018299	INEL	Filter	119	376	17.00 U	0.24 J	0.29 J	0.27 J	0.14 U	0.26 J	0.13 U	17.00 U	0.13 U
018413	INEL	Graphite	115	300	5.00 U	0.01 U	0.12	0.01 U	0.09 J	0.01 U	0.01 U	5.00 U	0.01 U
018441	INEL	Graphite	115	300	17.00 U	0.03 U	0.07 J	0.04 U	0.06 J	1.10	0.03 U	17.00 U	0.03 U
018464	INEL	Graphite	115	300	5.00 U	0.02 J	0.49	0.02 U	0.41	0.01 U	0.01 U	5.00 U	0.01 U
018476	INEL	Solidified Inorganics	111	292	5.00 U	0.09 U	0.23 J	0.22 J	0.12 J	0.10 U	0.08 U	5.00 U	0.08 U
018491	INEL	Graphite	115	300	17.00 U	0.03 U	0.07 J	0.04 U	0.09 J	0.03 U	0.03 U	17.00 U	0.03 U
019410	INEL	Lead/Cadmium Metal	123	339	5.00 U	0.61 U	0.95 U	0.86 U	83.00 D	0.70 U	0.55 U	5.00 U	0.55 U
019413	INEL	Lead/Cadmium Metal	123	339	5.00 U	5.50 J	7.70 J	3.80 U	430.00	3.10 U	2.40 U	5.00 U	2.40 U
019572	INEL	Lead/Cadmium Metal	123	339	17.00 U	3.70	0.34 J	0.30 J	7.90	0.52 J	0.81	17.00 U	0.05 U

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
021031	RFETS	Solidified Inorganics	214	292	5.00 U	0.04 U	0.18 J	0.06 U	0.24 J	0.08	0.04 U	5.00 U	0.05 J
021172	RFETS	Inorganic Non-metal	218	442	5.00 U	0.01 J	0.84 J	0.02 U	0.14 B	0.01	0.01 U	5.00 U	0.02 J
021306	INEL	Solidified Inorganics	213	4	17.00 U	0.03 U	1.80	0.04 U	0.14 J	0.03 U	0.03 U	17.00 U	0.03 J
021392	RFETS	Solidified Inorganics	214	292	5.00 U	0.15 U	32.00 U	0.22 U	19.00	0.18	0.14 U	5.00 U	0.14 U
021442	INEL	Solidified Inorganics	211	1	17.00 U	0.52 U	98.00	0.49 U	0.54 U	0.54 U	0.50 U	17.00 U	7.20
021488	RFETS	Inorganic Non-metal	218	442	5.00 U	0.21 J	3.20 J	0.05 U	7.50 E	0.04	0.03 U	5.00 U	0.33 J
021503	RFETS	Inorganic Non-metal	218	440	5.00 U	0.16 U	18.00 U	0.22 U	0.29 J	0.18	0.14 U	5.00 U	0.14 U
021511	RFETS	Solidified Inorganics	213	4	5.00 U	0.04 U	6.80 U	0.06 U	0.16 J	0.05	0.04 U	5.00 U	0.04 U
021512	INEL	Solidified Inorganics	211	7	17.00 U	0.89 U	110.00	1.30 U	0.87 U	1.00 U	0.81 U	17.00 U	5.00 J
021523	INEL	Solidified Organics	226	432	17.00 U	0.57 U	66.00	0.80 U	0.55 U	2.30	0.51 U	17.00 U	0.52 U
021565	INEL	Solidified Inorganics	211	7	17.00 U	0.93 U	190.00	0.87 U	0.97 J	0.97 U	0.89 U	17 00 U	1.00
021572	INEL	Solidified Inorganics	211	7	17.00 U	0.48 U	92.00	0.45 U	0.50 U	0.50 U	0.46 U	17.00 U	0.78 J
021600	RFETS	Solidified Inorganics	211	1	5.00 U	0.26 U	55.00	0.37 U	0.40 J	0.30	0.24 U	5.00 U	3.40
021631	INEL	Inorganic Non-metal	218	442	17.00 U	0.03 U	8.60 E	0.04 U	0.32 J	0.04 J	0.09 J	17.00 U	2.20
021698	INEL	Inorganic Non-metal	218	440	17.00 U	1.00 U	37.00	86.00	2.30	1.20 U	0.95 U	17.00 U	16.00
021699	INEL	Solidified Inorganics	213	4	68.00 U	0.31 U	47.00	0.44 U	0.68 J	0.35 U	0.28 U	68.00 U	26.00
021700	RFETS	Solidified Inorganics	213	4	5.00 U	0.04 J	0.26	0.01 U	0.48	0.01	0.01 U	5.00 U	0.13
021806	INEL	Inorganic Non-metal	218	440	17.00 U	0.22 U	16.00	84.00	0.44 J	0.22 U	0.33 J	17.00 U	6.60
021816	INEL	Solidified Inorganics	211	1	17.00 U	0.11 U	29.00	0.10 U	0.31 J	0.31 J	0.11 U	17.00 U	0.11 U
021865	INEL	Solidified Inorganics	211	1	17.00 U	0.89 U	120.00	1.30 U	0.87 U	1.00 U	0.81 U	17.00 U	0.81 U
021993	INEL	Solidified Inorganics	211	2	17.00 U	0.42 U	51.00	0.59 U	0.41 U	0.48 U	0.38 U	17.00 U	3.00 J
022000	INEL	Inorganic Non-metal	218	440	17.00 U	1.10	18.00	0.13 U	0.32 J	0.21 J	0.08 U	17.00 U	6.20
022036	INEL	Uncategorized Metal	217	480	17.00 U	0.32 J	19.00	0.07 U	0.10 J	0.33 J	0.07 J	17.00 U	3.00
022038	RFETS	Uncategorized Metal	217	481	18.00 J	0.38 J	29.00	0.24 U	1.50 JB	0.51	0.16 U	5.00 U	7.50
022052	INEL	Uncategorized Metal	217	481	17.00 U	0.02 J	0.84 J	0.02 U	0.02 U	0.01 U	0.02 U	17.00 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
022102	INEL	Solidified Organics	226	432	17.00 U	0.09 U	17.00	0.13 U	0.20 J	2.00	0.08 U	17.00 U	0.68 J
022105	INEL	Solidified Inorganics	211	1	17.00 U	0.39 U	50.00	0.55 U	0.50 J	0.45 U	0.35 U	17.00 U	20.00
022119	INEL	Inorganic Non-metal	222	371	17.00 U	0.50 U	66.00	0.71 U	0.49 U	0.58 U	0.46 U	17.00 U	0.46 U
022121	INEL	Solidified Inorganics	211	7	17.00 U	0.17 U	38.00	0.16 U	0.23 J	0.17 U	0.16 U	17.00 U	0.16 U
022135	INEL	Solidified Inorganics	211	7	17.00 U	0.64 U	92.00	0.91 U	0.62 U	0.74 U	0.58 U	17.00 U	0.58 U
022136	RFETS	Solidified Inorganics	211	7	5.00 U	0.82 U	160.00 U	1.20 U	0.80 U	0.94	0.74 U	11.00 J	0.75 U
022149	RFETS	Solidified Inorganics	211	7	5.00 U	0.20 U	38.00 U	0.29 U	0.20 U	0.24	0.19 U	5.00 U	0.19 U
022224	INEL	Solidified Inorganics	211	1	17.00 U	0.39 U	39.00	0.55 U	0.38 U	0.45 U	0.35 U	17.00 U	60.00
022226	RFETS	Inorganic Non-metal	222	371	5.00 U	1.10 U	200.00 U	1.60 U	1.00 U	1.20	0.99 U	5.00 U	0.99 U
022228	INEL	Inorganic Non-metal	222	371	17.00 U	0.14 U	24.00	0.20 U	0.21 J	0.16 U	0.13 U	17.00 U	0.13 U
022230	INEL	Inorganic Non-metal	222	371	17.00 U	0.11 U	29.00 E	0.16 U	0.19 J	0.13 U	0.10 U	17.00 U	0.10 U
022249	INEL	Uncategorized Metal	217	480	17.00 U	1.90 U	480.00	1.80 U	1.90 U	1.90 U	1.80 U	17.00 U	1.80 U
022275	INEL	Uncategorized Metal	217	480	17.00 U	0.42 U	94.00	0.39 U	0.43 U	0.72 J	0.40 U	17.00 U	0.40 U
022286	RFETS	Uncategorized Metal	217	480	6.10 J	0.47 U	96.00 J	0.67 U	0.46 U	0.54	0.42 U	5.00 U	0.59 J
022296	INEL	Solidified Inorganics	211	1	17.00 U	0.93 U	150.00	0.87 U	0.96 U	0.96 U	0.88 U	17.00 U	7.00
022306	INEL	Inorganic Non-metal	218	440	17.00 U	0.84 U	75.00	34.00	0.81 U	0.96 U	0.76 U	17.00 U	1.10
022338	INEL	Solidified Organics	212	3	17.00 U	820.00 J	18000	160.00 U	10000	130.00 U	100.00 U	17.00 U	100.00 U
022347	INEL	Inorganic Non-metal	218	440	17.00 U	2.10	58.00	0.27 U	0.30 U	0.43 J	0.28 U	17.00 U	0.28 U
022358	INEL	Uncategorized Metal	217	480	17.00 U	0.02 U	8.10 E	0.02 U	0.16 J	1.50	0.02 U	17.00 U	0.04 J
022416	RFETS	Uncategorized Metal	217	320	5.00 U	1.10	7.60 J	0.07 U	0.12 J	0.06	0.16 J	5.00 U	0.40 J
022434	INEL	Solidified Organics	226	432	17.00 U	0.36 U	55.00	0.52 U	0.35 U	7.50	0.33 U	17.00 U	3.00
022442	INEL	Solidified Organics	226	432	17.00 U	1.07 U	138.50	1.50 U	1.05 U	2.05 J	0.98 U	17.00 U	0.98 U
022450	RFETS	Uncategorized Metal	217	320	5.00 U	0.12 J	11.00 U	0.12 U	0.13 JB	0.09	0.07 U	5.00 U	0.07 U
022453	RFETS	Solidified Inorganics	211	2	5.00 U	0.07 U	15.00	0.10 U	0.45 J	0.13	0.07 U	5.00 U	5.10
022486	RFETS	Inorganic Non-metal	218	440	5.00 U	1.70 U	120.00	110.00	1.80 JB	1.90	1.50 U	5.00 U	42.00

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(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
022511	INEL	Uncategorized Metal	217	480	17.00 U	0.86 U	130.00	1.20 U	0.84 U	0.99 U	0.78 U	17.00 U	0.79 U
022513	INEL	Solidified Organics	212	1	17.00 U	0.25 U	30.00	0.36 U	0.24 U	0.29 U	0.23 U	17.00 U	1.50 J
022517	INEL	Solidified Organics	226	432	17.00 U	0.11 U	23.00 B	0.15 U	0.27 J	2.50 J	0.10 U	17.00 U	0.94 J
022539	INEL	Solidified Organics	226	432	17.00 U	0.11 U	7.20	0.15 U	0.26 J	3.20	0.10 U	17.00 U	0.31 J
022549	INEL	Uncategorized Metal	217	480	17.00 U	1.40 U	230.00	2.00 U	1.40 U	1.60 U	1.30 U	17.00 U	1.30 U
022552	INEL	Inorganic Non-metal	218	442	17.00 U	0.32 U	44.00	0.46 U	0.31 U	0.37 U	0.29 U	17.00 U	0.54 J
022557	INEL	Uncategorized Metal	217	480	17.00 U	0.66 U	130.00	0.62 U	0.79 J	0.68 U	0.62 U	17.00 U	0.63 U
022595	INEL	Solidified Inorganics	211	1	17.00 U	0.32 U	63.00	0.30 U	0.33 U	0.33 U	0.30 U	17.00 U	0.30 U
022600	RFETS	Solidified Inorganics	213	4	130.00 U	0.26 U	46.00	0.36 U	0.25 U	0.34	0.23 U	130.00 U	9.00
022780	INEL	Solidified Inorganics	211	7	17.00 U	0.47 U	130.00	0.44 U	0.78 J	0.48 U	0.44 U	17.00 U	0.44 U
022789	INEL	Solidified Inorganics	211	7	17.00 U	0.62 U	82.00	0.88 U	0.60 U	0.71 U	0.56 U	17.00 U	0.56 U
022790	INEL	Solidified Inorganics	214	292	17.00 U	1.50	51.00	0.21 U	1.40	0.23 U	0.21 U	17.00 U	0.21 U
022803	INEL	Inorganic Non-metal	222	371	17.00 U	0.59 U	80.00	0.83 U	0.57 U	0.67 U	0.53 U	17.00 U	0.53 U
022807	INEL	Salt Waste	224	414	17.00 U	0.12 U	15.00	0.16 U	0.25 J	0.13 U	0.10 U	17.00 U	0.11 U
022811	INEL	Solidified Inorganics	211	7	17.00 U	0.39 U	75.00	0.37 U	0.54 J	0.40 U	0.37 U	17.00 U	0.37 U
022833	INEL	Solidified Inorganics	211	7	17.00 U	2.80 U	490.00	2.60 U	2.90 U	2.90 U	2.60 U	17.00 U	2.60 U
022841	INEL	Solidified Inorganics	211	7	17.00 U	1.50 U	290.00	1.40 U	1.50 U	1.50 U	1.40 U	17.00 U	1.40 U
022850	INEL	Solidified Inorganics	211	7	17.00 U	0.93 U	170.00	0.87 U	0.96 U	0.97 U	0.88 U	17.00 U	0.88 U
022874	INEL	Inorganic Non-metal	222	371	17.00 U	0.20 U	34.00	0.28 U	0.36 J	0.22 U	0.18 U	17.00 U	0.18 U
022894	INEL	Solidified Inorganics	211	1	17.00 U	0.13 U	38.00	0.12 U	0.93 J	0.14 U	0.13 U	17.00 U	0.13 U
022923	INEL	Inorganic Non-metal	218	440	17.00 U	0.36 U	50.00	0.52 U	0.35 U	0.42 U	0.33 U	17.00 U	0.33 U
023005	INEL	Solidified Inorganics	211	7	17.00 U	0.17 U	14.00	0.24 U	0.30 J	0.19 U	0.15 U	17.00 U	0.15 U
023027	RFETS	Uncategorized Metal	217	480	5.00 U	0.16 U	34.00 B	0.23 U	0.70 JB	0.19	0.15 U	5.00 U	4.50 B
023041	RFETS	Inorganic Non-metal	222	371	5.00 U	0.29 J	39.00 J	0.38 U	1.70 JB	0.31	0.24 U	5.00 U	0.28 J
023046	RFETS	Solidified Inorganics	211	7	5.00 U	0.47 U	97.00 U	0.67 U	0.70 J	0.54	0.42 U	5.00 U	0.43 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
023048	RFETS	Solidified Organics	226	432	17.00 U	0.39 U	60.00 U	0.55 U	0.38 U	0.86	0.35 U	17.00 U	0.36 U
023062	INEL	Solidified Inorganics	211	7	17.00 U	0.17 U	18.00	0.24 U	0.18 J	0.19 U	0.15 U	17.00 U	0.15 U
023211	INEL	Filter	119	376	17.00 U	0.06 U	0.10 J	0.08 U	0.47 J	0.41 J	0.05 U	17.00 U	0.05 U
023212	RFETS	Uncategorized Metal	217	480	5.80 J	0.63 J	94.00 U	0.78 U	1.10 J	0.63	0.50 U	7.50 J	0.50 U
023227	INEL	Uncategorized Metal	217	480	17.00 U	0.09 U	12.00	0.13 U	0.12 J	0.11 U	0.08 U	17.00 U	0.08 U
023229	INEL	Combustible	216	337	17.00 U	0.56 U	74.00	0.79 U	0.55 J	0.64 U	0.50 U	17.00 U	0.51 U
023235	RFETS	Heterogeneous	216	336	7.10 J	0.15 U	29.00 U	0.21 U	5.70	1.00	0.13 U	5.00 U	0.13 U
023238	INEL	Solidified Inorganics	211	1	17.00 U	0.20 U	43.00	0.19 U	1.80	0.21 U	0.20 U	17.00 U	0.20 U
023277	INEL	Inorganic Non-metal	222	371	17.00 U	0.98 U	130.00	1.40 U	0.95 U	1.10 U	0.88 U	17.00 U	0.89 U
023285	INEL	Solidified Inorganics	211	7	17.00 U	1.90 U	260.00	2.60 U	1.80 U	2.10 U	1.70 U	17.00 U	1.70 U
023312	INEL	Uncategorized Metal	217	480	17.00 U	0.93 U	180.00	0.87 U	0.96 U	0.97 U	0.89 U	17.00 U	0.89 U
023341	RFETS	Solidified Inorganics	211	7	5.00 U	0.01 U	4.60 J	0.01 U	0.18	0.05	0.04 J	5.00 U	0.06 J
023357	INEL	Solidified Inorganics	211	1	17.00 U	0.14 U	19.00	0.20 U	0.26 J	0.16 J	0.13 U	17.00 U	0.16 J
023383	RFETS	Uncategorized Metal	217	481	5.00 U	0.02 J	0.88 U	0.01 U	0.03 JB	0.03	0.01 U	5.00 U	0.01 U
023384	INEL	Combustible	223	339	15.00 U	0.44 J	32.00	0.10 U	0.10 U	0.11 J	0.21 J	15.00 U	0.11 U
023388	INEL	Heterogeneous	216	330	18.00 U	0.06 U	23.00	0.09 U	0.09 U	0.06 U	0.08 U	18.00 U	0.09 U
023392	INEL	Solidified Inorganics	213	4	43.00 U	0.63 U	80.00	0.89 U	0.61 U	0.72 U	0.57 U	43.00 U	0.57 U
023407	INEL	Solidified Organics	212	3	17.00 U	22.00 U	360.00	31.00 U	3200.0	25.00 U	20.00 U	17.00 U	20.00 U
023460	INEL	Inorganic Non-metal	218	442	17.00 U	0.31 J	5.40	0.04 U	0.19 J	0.12 J	0.24 J	17.00 U	0.45 J
023469	INEL	Solidified Organics	212	3	17.00 U	86.00 E	280.00 E	0.48 U	300.00 E	0.38 U	0.30 U	17.00 U	3.10 J
023492	INEL	Solidified Inorganics	211	7	17.00 U	0.70 U	78.00	0.99 U	0.68 U	0.80 U	0.63 U	17.00 U	0.63 U
023519	INEL	Solidified Organics	212	3	17.00 U	8.80	140.00	3.30 U	640.00	3.70 U	3.40 U	17.00 U	3.40 U
023535	INEL	Solidified Inorganics	211	7	17.00 U	0.93 U	180.00	0.87 U	0.96 U	0.96 U	0.88 U	17.00 U	0.88 U
023552	INEL	Solidified Inorganics	211	1	17.00 U	0.78 U	100.00	1.10 U	0.76 U	0.90 U	0.71 U	17.00 U	0.71 U
023662	INEL	Inorganic Non-metal	218	442	17.00 U	0.73 J	16.00	0.13 U	0.38 J	0.11 J	0.15 J	17.00 U	1.80

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
023681	INEL	Solidified Inorganics	211	1	17.00 U	0.34 U	69.00	0.48 U	0.40 J	0.38 U	0.30 U	17.00 U	33.00
023695	RFETS	Solidified Inorganics	211	2	5.00 U	0.17 U	33.00 J	0.24 U	0.19 J	0.20	0.16 U	5.00 U	1.60 J
023771	RFETS	Heterogeneous	216	330	12.00 J	0.18 U	7.70 J	0.72 J	1.10 JB	4.90	0.16 U	5.00 U	0.23 J
023776	INEL	Heterogeneous	216	330	15.00 U	0.37 U	56.00	0.52 U	0.36 U	0.42 U	0.33 U	15.00 U	10.00
023805	INEL	Uncategorized Metal	217	480	17.00 U	0.23 J	1.20	0.02 U	0.10 J	0.12 J	0.11 J	17.00 U	0.23 J
023827	RFETS	Uncategorized Metal	217	320	5.00 U	0.11	1.40 J	0.01 U	0.10 B	0.03	0.05 J	5.00 U	0.01 J
023840	INEL	Combustible	216	337	18.00 U	58.00	76.00	0.33 U	0.32 U	0.21 U	0.29 U	18.00 U	0.34 U
023901	INEL	Heterogeneous	216	330	18.00 U	0.22 U	91.00	0.31 U	0.36 J	0.20 U	0.28 U	18.00 U	19.00
023929	RFETS	Inorganic Non-metal	218	440	0.60 U	0.56 U	42.00 U	32.00	1.80 JB	0.64	0.50 U	5.00 U	0.50 U
023959	INEL	Uncategorized Metal	217	480	17.00 U	1.20 U	170.00	1.80 U	1.20 U	1.40 U	1.10 U	17.00 U	1.10 U
024028	RFETS	Inorganic Non-metal	218	440	5.00 U	0.19 J	21.00 U	0.16 U	1.00 J	0.13	0.10 U	5.00 U	0.11 U
024029	INEL	Uncategorized Metal	217	480	17.00 U	0.01 U	1.20	0.02 U	0.02 U	0.08 J	0.02 U	17.00 U	0.02 U
024058	INEL	Solidified Inorganics	211	1	17.00 U	0.42 U	51.00	0.59 U	0.41 U	0.48 U	0.38 U	17.00 U	22.00
024059	INEL	Solidified Inorganics	214	292	17.00 U	0.17 U	30.00	0.24 U	0.26 J	0.19 U	0.15 U	17.00 U	1.40 J
024088	INEL	Combustible	216	337	15.00 U	0.32 U	48.00 B	0.45 U	0.31 U	0.37 U	0.29 U	15.00 U	2.10 B
024090	INEL	Combustible	216	337	18.00 U	26.00	48.00	30.00	0.47 U	0.31 U	0.44 U	18.00 U	0.61 J
024092	INEL	Combustible	216	337	17.00 U	11.00	180.00	2.00 U	140.00	1.60 U	1.30 U	17.00 U	2.40
024095	INEL	Combustible	216	337	18.00 U	53.00	12.00	0.20 U	0.20 U	0.13 U	0.18 U	18.00 U	1.80
024102	INEL	Combustible	216	337	17.00 U	47.00	65.00	0.68 U	0.46 U	0.54 U	0.43 U	17.00 U	12.00
024106	INEL	Combustible	216	337	15.00 U	53.00	88.00	0.99 U	3.80	0.80 U	0.63 U	15.00 U	20.00
024113	INEL	Combustible	216	337	17.00 U	35.00	29.00	0.30 U	22.00	0.24 U	0.19 U	17.00 U	3.40
024147	INEL	Solidified Inorganics	211	1	17.00 U	0.64 U	86.00	0.91 U	0.62 U	0.74 U	0.58 U	17.00 U	0.58 U
024165	INEL	Combustible	216	337	15.00 U	68.00	48.00	0.70 U	0.48 U	0.56 U	0.45 U	15.00 U	1.60
024168	INEL	Heterogeneous	216	330	17.00 U	0.08 J	3.00	0.04 U	0.09 J	0.56 J	0.05 J	17.00 U	0.32 J
024185	INEL	Salt Waste	224	409	17.00 U	0.03 U	5.60	0.04 U	0.33 J	0.04 U	0.03 U	17.00 U	0.04 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
024254	INEL	Salt Waste	224	414	17.00 U	0.05 U	5.00	0.07 U	0.20 J	0.05 U	0.04 U	17.00 U	1.70
024271	INEL	Inorganic Non-metal	218	442	17.00 U	0.09 U	21.00 E	0.13 U	0.31 J	0.12 J	0.08 U	17.00 U	3.10
024273	INEL	Inorganic Non-metal	218	442	17.00 U	0.18 U	33.00	0.26 U	0.44 J	0.21 U	0.16 U	17.00 U	4.50
024289	RFETS	Inorganic Non-metal	218	440	5.00 U	0.33 U	61.00	76.00	0.58 J	0.38	0.41 J	5.00 U	18.00
024295	INEL	Salt Waste	224	414	17.00 U	0.09 U	7.50	0.13 U	0.28 J	0.11 U	0.08 U	17.00 U	12.00
024308	INEL	Solidified Inorganics	211	2	17.00 U	0.14 U	16.00	0.20 U	0.47 J	0.16 U	0.13 U	17.00 U	8.40
024309	INEL	Solidified Inorganics	211	2	17.00 U	0.11 U	14.00	0.16 U	0.28 J	0.13 U	0.10 U	17.00 U	6.10
024311	INEL	Solidified Inorganics	211	2	41.00 U	0.23 U	18.00	0.32 U	0.30 J	0.26 U	0.20 U	41.00 U	6.60
024318	INEL	Solidified Inorganics	211	2	17.00 U	0.23 U	27.00	0.32 U	0.48 J	0.26 U	0.20 U	17.00 U	16.00
024506	INEL	Inorganic Non-metal	122	374	17.00 U	0.06 U	0.12 J	0.08 U	0.12 J	0.06 U	0.05 U	17.00 U	0.05 U
024507	INEL	Uncategorized Metal	117	480	17.00 U	0.07 U	0.68 J	0.47 J	0.16 J	0.08 U	0.06 U	17.00 U	0.06 U
024600	INEL	Uncategorized Metal	217	480	17.00 U	0.25 U	42.00	0.36 U	0.56 J	0.29 U	0.23 U	17.00 U	14.00
024638	INEL	Heterogeneous	216	330	15.00 U	0.12 U	24.00	0.18 U	0.12 U	0.14 U	0.11 U	15.00 U	10.00
024670	INEL	Solidified Inorganics	211	1	17.00 U	0.50 U	63.00	0.71 U	0.54 J	0.58 U	0.46 U	17.00 U	0.46 U
024765	INEL	Uncategorized Metal	217	480	17.00 U	0.04 U	14.00	0.05 U	0.05 U	0.03 U	0.04 U	17.00 U	0.05 U
024786	INEL	Uncategorized Metal	217	480	17.00 U	0.34 U	56.00	0.48 U	0.32 U	0.38 U	0.30 U	17.00 U	0.30 U
024850	INEL	Solidified Organics	226	432	17.00 U	0.09 U	17.00	0.13 U	0.21 J	5.10	0.08 U	17.00 U	0.51 J
024884	INEL	Uncategorized Metal	217	480	17.00 U	0.49 J	30.00	0.32 U	29.00	0.26 U	0.20 U	17.00 U	7.40
024897	INEL	Solidified Inorganics	211	1	17.00 U	0.22 U	23.00	0.32 U	0.27 J	0.26 U	0.20 U	17.00 U	7.60
024920	INEL	Solidified Inorganics	211	1	17.00 U	0.64 U	81.00	0.91 U	0.62 U	0.74 U	0.58 U	17.00 U	36.00
024991	INEL	Solidified Inorganics	211	1	17.00 U	0.31 U	35.00	0.44 U	0.68 J	0.35 U	0.28 U	17.00 U	16.00
025001	INEL	Solidified Organics	212	3	17.00 U	1.10 U	140.00	1.60 U	1.10 U	1.30 U	1.00 U	17.00 U	47.00
032284	INEL	Combustible	223	339	17.00 U	1.10	97.00	0.33 U	0.32 U	0.33 J	0.62 J	17.00 U	0.34 U
032287	RFETS	Solidified Inorganics	211	7	5.00 U	1.10 U	200.00 U	1.60 U	1.10 U	1.30	0.99 U	5.00 U	1.00 U
032467	INEL	Combustible	216	337	17.00 U	0.22 U	38.00	0.32 U	1.00	0.26 U	0.20 U	17.00 U	0.20 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
032469	RFETS	Combustible	216	337	5.00 U	0.36 U	51.00 U	48.00	0.35 U	0.42	0.33 U	5.00 U	0.33 U
032473	INEL	Combustible	216	337	15.00 U	26.00	200.00 B	2.10 U	1.40 U	1.70 U	1.40 U	15.00 U	1.40 U
032485	INEL	Combustible	216	337	15.00 U	19.00	53.00	68.00	0.84 U	1.00 U	0.78 U	15.00 U	0.79 U
032517	RFETS	Combustible	223	339	5.00 U	0.48 J	14.00 J	0.12 U	0.26 JB	0.18	0.29 J	5.00 U	0.10 J
032521	INEL	Combustible	223	339	17.00 U	1.10	14.00	0.07 U	0.10 J	0.31 J	0.51 J	17.00 U	0.10 J
032525	INEL	Combustible	223	339	17.00 U	0.70 J	12.00	0.04 U	0.07 J	0.27 J	0.83 J	17.00 U	0.04 U
032526	INEL	Combustible	223	339	15.00 U	24.00	70.00	0.61 U	130.00	0.38 U	0.55 U	15.00 U	0.63 U
032529	INEL	Heterogeneous	216	336	1.30 U	0.19 U	250.00 E	0.27 U	1.10	0.21 U	0.30 U	1.30 U	0.31 U
032540	INEL	Uncategorized Metal	217	480	17.00 U	0.36 U	60.00	0.52 U	0.35 U	2.70	0.33 U	17.00 U	0.33 U
032632	INEL	Uncategorized Metal	217	480	17.00 U	0.11 U	44.00	0.16 U	0.21 J	0.10 U	0.14 U	17.00 U	0.16 U
032659	RFETS	Uncategorized Metal	217	480	5.00 U	0.29 U	57.00 U	0.41 U	0.16 U	0.33	0.26 U	5.00 U	0.26 U
032669	RFETS	Uncategorized Metal	217	480	5.00 U	0.31 U	61.00 U	0.44 U	0.30 U	0.36	0.28 U	5.00 U	0.28 U
032712	INEL	Uncategorized Metal	217	480	17.00 U	0.27 U	40.00	0.38 U	0.51 J	0.30 U	0.24 U	17.00 U	0.24 U
032715	RFETS	Combustible	216	337	5.00 U	2.20	13.00 J	0.12 U	4.90	0.10	0.08 U	5.00 U	1.00 J
032748	INEL	Combustible	223	339	2.30 J	0.19 U	84.00	0.27 U	1.10	0.21 U	0.30 U	1.30 U	0.31 U
032753	INEL	Uncategorized Metal	217	481	17.00 U	0.03 U	2.80	0.04 U	0.07 J	0.03 U	0.03 U	17.00 U	0.03 U
033091	INEL	Combustible	223	339	17.00 U	0.11 J	2.60	0.02 U	0.03 J	0.60 J	0.05 J	17.00 U	0.02 U
D01332	RFETS	Heterogeneous	116	832	7.06 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	9.11 J	0.50 U
D06288	RFETS	Filter	119	338	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D06339	RFETS	Heterogeneous	0	337	12.73 J	0.28 J	0.20 U	0.20 U	0.20 U	3.45	0.44 J	4.78 J	0.20 U
D11129	RFETS	Filter	119	338	0.50 U	0.18 J	0.10 U	0.10 U	0.10 U	0.10 U	0.36 J	1.13 J	0.10 U
D13364	RFETS	Uncategorized Metal	117	480	10.47 J	0.78 J	0.27 J	0.18 J	2.45	0.55 J	0.33 J	0.50 U	0.10 U
D15680	RFETS	Heterogeneous	116	831	333.33 U	66.67 U	4587.4	66.67 U	66.67 U	66.67 U	66.67 U	733.33 U	66.67 U
D17184	RFETS	Solidified Inorganics	111	800	0.90 U	0.10 U	0.32 J	0.39 J	0.23 J	0.83 J	0.10 U	0.50 U	0.10 U
D32439	RFETS	Filter	119	338	0.67 J	0.62 J	0.10 U	0.10 U	0.10 U	0.10 U	0.13 J	1.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D32978	RFETS	Solidified Inorganics	111	803	28.34 U	5.67 U	429.17	5.67 U	5.67 U	5.67 U	5.67 U	62.34 U	5.67 U
D35301	RFETS	Solidified Inorganics	111	800	0.90 U	0.10 U	0.10 U	0.10 U	0.10 J	0.10 U	0.10 U	0.50 U	0.10 U
D35306	RFETS	Lead/Cadmium Metal	123	339	3.12 J	3.87	0.20 U	0.20 U	0.20 U	14.44	2.43	2.20 U	0.20 U
D36606	RFETS	Uncategorized Metal	117	480	2.00 U	0.40 U	1.08 J	0.40 U	0.45 J	0.40 U	0.40 U	4.80 U	0.40 U
D38859	RFETS	Solidified Inorganics	111	803	0.90 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.20 J	0.10 U
D38989	RFETS	Heterogeneous	0	336	5.78 J	0.10 U	0.10 U	0.10 U	0.14 J	8.13	0.10 U	1.10 U	0.10 U
D41681	RFETS	Filter	119	338	3.58 J	0.47 J	0.10 U	0.10 U	0.10 U	0.52 J	0.12 J	1.10 U	0.10 U
D42280	RFETS	Solidified Organics	112	801	2083.3 U	1017.9 J	24947	416.67 U	30767	416.67 U	416.67 U	4583.3 U	416.67 U
D47501	RFETS	Lead/Cadmium Metal	0	341	4.50 J	0.10 U	0.10 U	0.10 U	0.10 U	0.48 J	0.10 U	1.10 U	0.10 U
D48182	RFETS	Filter	119	376	3.60 U	0.40 U	0.40 U	1.83 J	0.40 U	0.40 U	0.40 U	2.00 U	0.40 U
D48200	RFETS	Heterogeneous	116	831	72.00 U	8.00 U	349.15	8.00 U	8.00 U	8.00 U	8.00 U	98.30 J	8.00 U
D48377	RFETS	Inorganic Non-metal	118	368	0.90 U	0.10 U	0.10 U	0.10 U	0.10 U	0.15 J	0.10 U	0.87 J	0.10 U
D49662	RFETS	Solidified Inorganics	0	292	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D49880	RFETS	Heterogeneous	0	336	9.09 J	0.28 J	0.27 U	0.27 U	0.27 U	39.84	0.27 U	2.94 U	0.27 U
D52318	RFETS	Lead/Cadmium Metal	117	321	0.61 J	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D52362	RFETS	Heterogeneous	116	821	1.80 U	0.20 U	2.01	1.05 J	0.31 J	0.20 U	0.20 U	1.00 U	0.20 U
D52726	RFETS	Heterogeneous	116	833	4.00 U	0.80 U	62.32	2.02 J	0.80 J	0.80 U	0.80 U	8.80 U	21.12
D53672	RFETS	Inorganic Non-metal	118	440	2.93 J	0.20 U	0.36 J	0.53 J	0.25 J	0.20 U	0.20 U	1.00 U	0.20 U
D55656	RFETS	Heterogeneous	116	831	3.25 J	0.30 U	0.31 J	0.30 U	0.33 J	0.30 U	0.30 U	1.50 U	0.30 U
D55680	RFETS	Heterogeneous	116	821	1.80 U	0.20 U	0.32 J	0.20 J	0.55 J	0.20 U	0.20 U	1.00 U	0.20 U
D55938	RFETS	Heterogeneous	116	831	1.80 U	0.20 U	0.68 J	0.40 U	0.24 J	0.20 U	0.20 U	1.00 U	0.20 U
D56095	RFETS	Heterogeneous	0	337	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D56595	RFETS	Heterogeneous	116	831	66.67 U	13.33 U	13.33 U	13.33 U	13.33 U	13.33 U	13.33 U	146.66 U	13.33 U
D56755	RFETS	Heterogeneous	116	821	0.90 U	0.10 U	0.32 J	0.11 J	0.52 J	0.10 U	0.10 U	0.50 U	0.10 U
D56823	RFETS	Heterogeneous	116	831	3.60 U	0.40 U	3.96 J	0.99 J	1.50 J	0.40 U	0.40 U	2.00 U	0.40 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D57179	RFETS	Heterogeneous	0	330	10.00 U	2.00 U	108.25	2.00 U	2.00 U	2.00 U	2.00 U	30.93 J	2.00 U
D57522	RFETS	Heterogeneous	0	336	2.00 U	0.40 U	0.40 U	0.40 U	0.40 U	1.06 J	0.40 U	4.40 U	0.40 U
D57847	RFETS	Uncategorized Metal	117	480	2.00 U	0.40 U	0.40 U	0.86 J	0.40 U	0.74 J	0.40 U	4.80 U	0.40 U
D58143	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.10 U	0.88 J	0.21 J	0.10 U	0.10 U	0.50 U	0.10 U
D58154	RFETS	Heterogeneous	116	831	5.55 J	0.73 J	0.76 J	4.52	0.61 J	3.10 J	0.40 U	4.40 U	0.40 U
D58627	RFETS	Heterogeneous	116	831	1.00 U	0.20 U	0.51 J	0.20 U	0.20 U	0.20 U	0.20 U	2.20 U	0.20 U
D58889	RFETS	Heterogeneous	116	831	1.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U
D58970	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.43 J	0.57 J	0.69 J	0.10 U	0.10 U	0.51 J	0.10 U
D59053	RFETS	Lead/Cadmium Metal	0	341	2.26 J	1.17	0.10 U	0.10 U	0.10 U	1.59	0.92 J	1.10 U	0.10 U
D59703	RFETS	Heterogeneous	116	831	12.74 J	0.50 U	0.52 J	1.91 J	0.50 U	0.77 J	0.50 U	6.00 U	0.50 U
D59899	RFETS	Filter	0	331	6.81 Ja	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.00 U	0.50 U
D60056	RFETS	Lead/Cadmium Metal	0	341	2.57 J	1.94 J	0.27 U	0.27 U	0.27 U	3.53	2.10 J	2.94 U	0.27 U
D60218	RFETS	Heterogeneous	116	821	1.80 U	0.20 U	0.23 J	0.29 J	0.35 J	0.20 U	0.20 U	2.21 J	0.20 U
D60298	RFETS	Solidified Organics	112	801	5160.0 U	573.33 U	12909	573.33 U	16369	573.33 U	573.33 U	4036.8 J	573.33 U
D60320	RFETS	Heterogeneous	0	330	166.35 J	68.40 J	28.00 U	28.00 U	1265.6	28.00 U	28.00 U	475.47 J	28.00 U
D60463	RFETS	Inorganic Non-metal	118	440	0.90 U	0.14 J	0.10 U	0.26 J	0.10 J	0.12 J	0.10 U	2.21 J	0.10 U
D60511	RFETS	Filter	119	491	2.09 J	0.20 U	9.99	0.47 J	0.20 U	0.20 U	0.20 U	1.13 J	0.20 U
D60635	RFETS	Filter	119	491	0.90 U	0.10 U	1.37	0.28 J	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D61245	RFETS	Heterogeneous	0	336	16.09 J	0.47 U	0.47 U	0.47 U	0.47 U	5.02	0.47 U	18.25 J	0.47 U
D61278	RFETS	Heterogeneous	0	336	2.96 J	4.74	0.27 U	0.27 U	0.48 J	22.81	1.12 J	2.94 U	0.27 U
D61473	RFETS	Heterogeneous	0	377	2.70 U	0.30 U	0.30 U	0.66 J	0.30 U	0.34 J	0.30 U	1.50 U	0.30 U
D61504	RFETS	Lead/Cadmium Metal	0	341	4.83 J	1.47	0.10 U	0.10 U	0.10 U	5.11	0.77 J	9.60 J	0.10 U
D61747	RFETS	Heterogeneous	0	330	7.76 J	0.27 U	0.27 U	0.27 U	0.27 U	12.64	0.40 J	7.81 J	0.27 U
D62340	RFETS	Heterogeneous	116	821	3.60 U	0.40 U	0.49 J	0.40 U	0.40 U	0.40 J	0.40 U	2.00 U	0.40 U
D62478	RFETS	Filter	119	376	3.60 U	0.40 U	0.40 U	2.69 J	0.40 U	0.40 U	0.40 U	2.00 U	0.40 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D62714	RFETS	Heterogeneous	116	831	5.00 U	1.00 U	30.09	1.00 U	15.72	1.00 U	1.00 U	12.00 U	1.00 U
D62851	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	3.32	1.34 J	0.48 J	0.30 U	0.30 U	1.50 U	0.30 U
D62855	RFETS	Heterogeneous	116	821	54.00 U	6.00 U	6.00 U	6.00 U	214.07	6.00 U	6.00 U	30.00 U	6.00 U
D63098	RFETS	Filter	0	331	8.26 Ja	0.50 U	0.50 U	0.50 U	0.50 U	0.62 J	0.50 U	6.00 U	0.50 U
D63229	RFETS	Heterogeneous	116	831	1.80 U	0.20 U	0.20 J	1.43 J	0.26 J	0.20 U	0.20 U	1.00 U	0.20 U
D63281	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.10 U	0.65 J	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D63460	RFETS	Heterogeneous	116	831	0.90 U	0.10 U	2.43	1.09	1.36	0.10 J	0.10 U	0.50 U	0.10 U
D63654	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.10 J	0.17 J	0.30 J	0.10 U	0.10 U	0.50 U	0.10 U
D63808	RFETS	Heterogeneous	116	831	7.20 U	0.80 U	45.12	2.42 J	1.77 J	0.80 U	0.80 U	4.00 U	0.80 U
D63817	RFETS	Heterogeneous	116	821	14.40 U	1.60 U	1.60 U	1.60 U	1.60 U	1.60 U	1.60 U	8.00 U	1.60 U
D63819	RFETS	Solidified Inorganics	111	807	1.80 U	0.20 U	1.40 J	0.44 J	2.30	0.20 U	0.20 U	1.00 U	0.20 U
D63999	RFETS	Filter	119	491	2.70 U	0.30 U	0.31 J	0.31 J	0.56 J	0.30 U	0.30 U	1.50 U	0.30 U
D64004	RFETS	Filter	0	331	5.58 Ja	0.40 U	0.40 U	0.40 U	0.40 U	0.86 Ja	0.40 U	4.80 U	0.40 U
D64137	RFETS	Filter	119	335	0.90 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D64448	RFETS	Heterogeneous	116	821	990.00 U	110.00 U	110.00 U	110.00 U	110.00 U	110.00 U	110.00 U	2110.9 J	110.00 U
D64555	RFETS	Solidified Organics	112	801	5160.0 U	573.33 U	904.15 J	573.33 U	18198	573.33 U	573.33 U	2866.6 U	573.33 U
D64632	RFETS	Solidified Inorganics	111	800	0.90 U	0.10 U	0.90 J	0.76 J	1.09	0.70 J	0.10 U	0.54 J	0.10 U
D64752	RFETS	Uncategorized Metal	117	480	10.00 U	2.00 U	175.17	2.00 U	2.00 U	2.00 U	2.00 U	24.00 U	2.00 U
D64758	RFETS	Heterogeneous	116	831	2.50 U	0.59 J	1.52 J	3.67 J	0.78 J	0.86 J	0.50 U	5.50 U	0.50 U
D64860	RFETS	Heterogeneous	116	831	60.00 U	12.00 U	681.08	12.00 U	12.00 U	12.00 U	12.00 U	144.00 U	12.00 U
D65212	RFETS	Heterogeneous	116	831	45.00 U	9.00 U	664.72	9.00 U	9.00 U	9.00 U	9.00 U	108.00 U	9.00 U
D65213	RFETS	Heterogeneous	116	831	40.00 U	8.00 U	394.11	8.00 U	8.00 U	8.00 U	8.00 U	96.00 U	8.00 U
D65214	RFETS	Heterogeneous	116	831	663.00 U	73.67 U	4170.2	73.67 U	73.67 U	73.67 U	73.67 U	823.82 J	73.67 U
D65530	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.12 J	0.33 J	0.10 U	0.14 J	0.10 U	0.50 U	0.10 U
D65535	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.30 J	0.22 J	0.65 J	0.10 U	0.10 U	0.50 U	0.10 U

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D65546	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.98 J	0.42 J	0.22 J	0.10 J	0.10 U	0.50 U	0.10 U
D65600	RFETS	Solidified Inorganics	111	807	0.90 U	0.10 U	0.14 J	0.76 J	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D65731	RFETS	Inorganic Non-metal	122	375	3.60 U	4.11	0.40 U	0.40 J	20.60	0.40 U	0.40 U	6.13 J	0.40 U
D65734	RFETS	Uncategorized Metal	117	480	6.30 U	0.70 U	2.27 J	0.70 U	0.70 U	0.95 J	0.70 U	3.50 U	0.70 U
D65754	RFETS	Heterogeneous	116	831	3.34 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	7.34 U	0.67 U
D65757	RFETS	Heterogeneous	116	831	15.00 U	3.00 U	34.29	3.00 U	133.99	3.00 U	3.00 U	33.55 J	3.00 U
D65972	RFETS	Filter	119	376	2.70 U	0.30 U	1.99 J	2.26 J	2.30 J	0.30 U	0.30 U	6.67 J	0.30 U
D66128	RFETS	Heterogeneous	116	831	2.50 U	0.52 J	1.13 J	1.50 J	21.90	0.50 U	0.50 U	7.66 J	0.50 U
D66157	RFETS	Uncategorized Metal	117	480	18.75 J	2.00 U	2.00 U	6.63 J	2.00 U	2.00 U	2.00 U	189.97 J	2.00 U
D66162	RFETS	Lead/Cadmium Metal	123	339	810.00 U	90.00 U	5612.3	90.00 U	413.64 J	90.00 U	90.00 U	450.00 U	90.00 U
D66211	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.19 J	0.10 U	0.38 J	0.10 U	0.10 U	0.50 U	0.10 U
D66213	RFETS	Heterogeneous	116	831	1.50 U	0.30 U	23.08	5.20	10.07	0.30 U	0.30 U	3.30 U	0.70 J
D66356	RFETS	Heterogeneous	116	831	833.33 U	166.67 U	10386	166.67 U	166.67 U	166.67 U	166.67 U	1833.3 U	166.67 U
D66378	RFETS	Heterogeneous	116	831	960.00 U	192.00 U	9184.5	192.00 U	192.00 U	192.00 U	192.00 U	2304.0 U	192.00 U
D66438	RFETS	Uncategorized Metal	117	480	14.40 U	54.53	1.60 U	1.60 U	25.18	1.60 U	1.60 U	8.00 U	1.60 U
D66523	RFETS	Solidified Organics	112	801	5160.0 U	573.33 U	12516	573.33 U	19219	573.33 U	573.33 U	2866.6 U	573.33 U
D66525	RFETS	Solidified Inorganics	111	800	1.33 U	0.27 U	1.26 J	1.22 J	0.27 U	0.45 J	0.27 U	3.20 U	0.43 J
D66631	RFETS	Heterogeneous	116	831	4.50 U	0.50 U	4.86 J	0.50 U	4.48 J	0.50 U	0.50 U	5.87 J	0.50 U
D66637	RFETS	Heterogeneous	116	831	40.00 U	8.00 U	403.75	8.00 U	8.00 U	8.00 U	8.00 U	96.00 U	8.00 U
D66641	RFETS	Heterogeneous	116	831	540.00 U	60.00 U	4144.3	60.00 U	60.00 U	60.00 U	60.00 U	300.00 U	60.00 U
D66649	RFETS	Lead/Cadmium Metal	123	339	504.00 U	56.00 U	1594.3	56.00 U	2006.3	56.00 U	56.00 U	280.00 U	56.00 U
D66773	RFETS	Uncategorized Metal	117	480	2.70 U	0.30 U	0.30 U	0.30 U	0.30 U	1.63 J	0.30 U	1.50 U	0.30 U
D66783	RFETS	Heterogeneous	116	831	2250.0 U	250.00 U	14569	250.00 U	250.00 U	250.00 U	250.00 U	1250.0 U	250.00 U
D66792	RFETS	Heterogeneous	116	831	900.00 U	100.00 U	6432.5	100.00 U	100.00 U	100.00 U	100.00 U	500.00 U	100.00 U
D66860	RFETS	Heterogeneous	116	833	1.80 U	0.22 J	0.20 U	0.86 J	0.25 J	0.71 J	0.20 U	2.35 J	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D66875	RFETS	Heterogeneous	116	832	0.90 U	0.10 U	0.10 U	1.38	0.33 J	0.10 U	0.10 U	1.64 J	0.10 U
D66948	RFETS	Heterogeneous	116	831	54.00 U	6.00 U	348.67	6.00 U	6.00 U	6.00 U	6.00 U	38.93 J	6.00 U
D66949	RFETS	Heterogeneous	116	831	5.40 U	0.60 U	36.09	0.60 U	3.54 J	0.60 U	0.60 U	7.95 J	0.60 U
D66953	RFETS	Uncategorized Metal	117	480	8.00 U	1.60 U	117.31	1.60 U	1.60 U	1.60 U	1.60 U	19.20 U	1.60 U
D66958	RFETS	Heterogeneous	116	831	2.70 U	0.30 U	1.23 J	0.30 U	4.06	0.30 U	0.30 U	4.27 J	0.30 U
D67009	RFETS	Solidified Organics	112	801	3060.0 U	340.00 U	3392.8	340.00 U	12288	340.00 U	340.00 U	1700.0 U	340.00 U
D67012	RFETS	Solidified Organics	112	801	8100.0 U	900.00 U	8430.3 J	900.00 U	34118	900.00 U	900.00 U	4500.0 U	900.00 U
D67047	RFETS	Solidified Inorganics	111	807	1.80 U	0.20 U	0.20 U	0.70 J	0.20 U	0.20 U	0.20 U	6.60 J	0.20 U
D67251	RFETS	Uncategorized Metal	117	480	6000.0 U	1200.0 U	1686.5 J	1200.0 U	1200.0 U	1200.0 U	1200.0 U	14400 U	1821.1 J
D67263	RFETS	Heterogeneous	116	831	81.00 U	9.00 U	481.60	9.00 U	9.00 U	9.00 U	9.00 U	45.00 U	9.00 U
D67277	RFETS	Heterogeneous	116	831	126.00 U	14.00 U	45.18 J	14.00 U	1170.2	14.00 U	14.00 U	70.00 U	14.00 U
D67278	RFETS	Heterogeneous	116	831	0.90 U	0.10 U	0.10 U	0.10 U	0.26 J	0.10 U	0.10 U	0.50 U	0.10 U
D67312	RFETS	Heterogeneous	116	825	1.80 U	0.20 U	0.20 U	0.20 U	0.27 J	0.20 U	0.20 U	1.00 U	0.20 U
D67317	RFETS	Uncategorized Metal	117	480	1.44 J	0.27 U	0.27 U	0.27 U	1.00 J	2.03 J	0.27 U	3.20 U	0.27 U
D67390	RFETS	Solidified Organics	112	801	1170.0 U	194.61 J	916.24 J	130.00 U	4459.1	130.00 U	130.00 U	650.00 U	130.00 U
D67391	RFETS	Heterogeneous	116	833	3.30 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	2.93 U	0.27 U
D67413	RFETS	Solidified Organics	112	801	6750.0 U	750.00 U	18543	750.00 U	27354	750.00 U	750.00 U	6834.0 J	750.00 U
D67434	RFETS	Solidified Inorganics	111	800	2.00 U	0.40 U	0.40 U	0.86 J	0.40 U	0.64 J	0.40 U	4.80 U	0.40 U
D67436	RFETS	Solidified Inorganics	111	800	0.67 U	0.13 U	0.28 J	0.76 J	0.13 U	0.42 J	0.13 U	2.25 J	0.13 U
D67441	RFETS	Solidified Inorganics	111	800	2.00 U	0.40 U	1.80 J	0.40 U	0.40 U	0.40 U	0.40 U	4.80 U	0.73 J
D67448	RFETS	Heterogeneous	116	852	0.90 U	0.10 U	0.56 J	0.10 U	0.10 U	0.10 U	0.10 U	0.88 J	0.10 U
D67455	RFETS	Filter	119	490	7.08 J	0.40 U	0.40 U	0.40 U	0.40 U	6.90	0.40 U	2.00 U	0.40 U
D67464	RFETS	Heterogeneous	116	831	2160.0 U	240.00 U	14009	240.00 U	240.00 U	240.00 U	240.00 U	1200.0 U	240.00 U
D67524	RFETS	Heterogeneous	116	832	167.34 U	33.34 J	18.59 U	18.59 U	887.74	18.59 U	18.59 U	266.96 J	18.59 U
D67532	RFETS	Lead/Cadmium Metal	123	339	56.70 U	6.30 U	456.31	6.30 U	6.30 U	6.30 U	6.30 U	62.62 J	6.30 U

Table [illegible]4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D67535	RFETS	Heterogeneous	116	831	1.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U
D67539	RFETS	Solidified Organics	112	801	2880.0 U	320.00 U	4071.6	320.00 U	12796	320.00 U	320.00 U	1600.0 U	320.00 U
D67541	RFETS	Heterogeneous	116	825	0.90 U	0.10 U	0.10 U	0.33 J	0.26 J	0.10 U	0.10 U	0.54 J	0.10 U
D67545	RFETS	Solidified Organics	112	801	810.00 U	147.15 J	731.16 J	90.00 U	2836.4	90.00 U	90.00 U	450.00 U	90.00 U
D67567	RFETS	Heterogeneous	116	831	5.62 J	0.30 U	0.31 J	1.91 J	0.30 U	1.75 J	0.30 U	1.50 U	0.30 U
D67582	RFETS	Heterogeneous	116	831	9.56 J	0.40 U	3.04 J	2.22 J	8.78	0.40 U	0.40 U	54.34 J	0.40 U
D67603	RFETS	Uncategorized Metal	117	480	117.00 U	13.00 U	912.67	13.00 U	13.00 U	13.00 U	13.00 U	251.28 J	13.00 U
D67654	RFETS	Solidified Inorganics	111	800	1.33 U	0.27 U	0.56 J	1.15 J	0.27 U	0.38 J	0.27 U	3.20 U	0.27 U
D67657	RFETS	Solidified Inorganics	111	800	1.33 U	0.27 U	0.46 J	1.43 J	0.27 U	0.40 J	0.27 U	3.20 U	0.27 U
D67678	RFETS	Heterogeneous	116	825	3.87 U	0.43 U	2.30 J	19.19	0.55 J	1.61 J	0.43 U	2.15 U	0.43 U
D67698	RFETS	Heterogeneous	116	831	8.00 U	1.60 U	1.60 U	1.60 U	1.60 U	1.60 U	1.60 U	17 60 U	1.60 U
D67707	RFETS	Heterogeneous	116	831	2.50 U	0.94 J	0.50 U	0.50 U	36.34	0.50 U	0.50 U	5.50 U	0.50 U
D67734	RFETS	Heterogeneous	116	831	990.00 U	110.00 U	7283.8	110.00 U	110.00 U	110.00 U	110.00 U	550.00 U	110.00 U
D67735	RFETS	Uncategorized Metal	117	480	16.20 U	1.80 U	130.61	1.80 U	1.80 U	1.80 U	1.80 U	9.00 U	1.80 U
D67759	RFETS	Heterogeneous	116	831	25.20 U	2.80 U	2.80 U	2.80 U	2.80 U	2.80 U	2.80 U	14.00 U	2.80 U
D67764	RFETS	Heterogeneous	116	831	10.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	22.00 U	2.00 U
D67766	RFETS	Heterogeneous	116	831	7.50 U	1.50 U	1.50 U	1.50 U	1.50 U	3.46 J	1.50 U	16.50 U	1.50 U
D67781	RFETS	Heterogeneous	116	831	2.70 U	0.30 U	0.52 J	1.94 J	0.30 U	0.55 J	0.30 U	2.15 J	0.30 U
D67908	RFETS	Heterogeneous	116	832	0.90 U	0.10 U	2.49	0.10 U	0.22 J	0.10 U	0.10 U	2.28 J	0.10 U
D67929	RFETS	Heterogeneous	116	832	0.50 U	0.10 U	0.20 J	0.81 J	0.13 J	0.10 U	0.10 U	1.10 U	0.10 U
D67989	RFETS	Heterogeneous	116	831	4.50 U	0.76 J	11.24	0.50 U	43.36	0.50 U	0.50 U	2.50 U	0.50 U
D67994	RFETS	Heterogeneous	116	831	13.34 U	2.67 U	29.48	2.67 U	164.99	2.67 U	2.67 U	29.34 U	2.67 U
D68044	RFETS	Heterogeneous	116	825	4.50 U	0.50 U	0.50 U	12.13	0.50 U	0.52 J	0.50 U	2.50 U	0.50 U
D68096	RFETS	Heterogeneous	116	821	2.46 J	0.20 U	0.37 J	0.60 J	0.61 J	0.28 J	0.20 U	1.00 U	0.20 U
D68247	RFETS	Solidified Inorganics	111	800	0.67 U	0.13 U	0.32 J	0.13 U	0.13 U	0.25 J	0.13 U	1.60 U	0.13 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D68248	RFETS	Solidified Organics	112	801	1350.0 U	150.00 U	2762.7	150.00 U	6364.6	150.00 U	150.00 U	750.00 U	150.00 U
D68250	RFETS	Solidified Organics	112	801	1530.0 U	170.00 U	2796.8	170.00 U	6225.7	170.00 U	170.00 U	850.00 U	170.00 U
D68254	RFETS	Solidified Inorganics	111	800	1.33 U	0.27 U	0.68 J	0.66 J	0.27 U	0.35 J	0.27 U	3.20 U	0.41 J
D68256	RFETS	Solidified Inorganics	111	800	2.00 U	0.40 U	1.83 J	1.32 J	0.40 U	0.55 J	0.40 U	4.80 U	0.68 J
D68276	RFETS	Heterogeneous	116	852	0.90 U	0.10 U	0.50 J	0.37 J	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D68277	RFETS	Uncategorized Metal	117	480	4.50 U	0.50 U	1.97 J	0.98 J	37.08	0.50 U	0.50 U	3.38 J	0.50 U
D68377	RFETS	Uncategorized Metal	117	480	1.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U
D68460	RFETS	Heterogeneous	116	832	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D68480	RFETS	Solidified Inorganics	111	800	0.50 J	0.10 U	0.13 J	0.17 J	0.10 U	0.26 J	0.10 U	2.36 J	0.10 U
D68486	RFETS	Solidified Organics	112	801	1260.0 U	206.92 J	8439.3	140.00 U	4240.3	140.00 U	140.00 U	831.18 J	140.00 U
D68514	RFETS	Uncategorized Metal	117	480	1.11 J	0.10 U	0.10 U	0.70 J	0.10 U	0.10 U	0.10 U	0.50 U	0.10 U
D68538	RFETS	Lead/Cadmium Metal	123	339	0.50 U	0.10 U	0.16 J	0.12 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U
D68600	RFETS	Heterogeneous	116	825	162.00 U	18.00 U	18.00 U	1922.1	18.00 U	18.00 U	18.00 U	90.00 U	18.00 U
D68601	RFETS	Heterogeneous	116	825	63.00 U	7.00 U	7.00 U	745.07	7.00 U	7.00 U	7.00 U	35.00 U	7.00 U
D68702	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.10 U	0.17 J	0.13 J	0.10 U	0.10 U	0.50 U	0.10 U
D68724	RFETS	Heterogeneous	116	831	1620.0 U	180.00 U	10740	180.00 U	180.00 U	180.00 U	180.00 U	900.00 U	180.00 U
D68756	RFETS	Heterogeneous	116	831	1.37 J	0.20 U	0.20 U	1.06 J	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U
D68885	RFETS	Heterogeneous	116	831	360.00 U	40.00 U	2205.7	40.00 U	334.76 J	40.00 U	40.00 U	200.00 U	40.00 U
D68896	RFETS	Heterogeneous	116	831	1917.0 U	213.00 U	4021.8	213.00 U	213.00 U	213.00 U	213.00 U	1065.0 U	213.00 U
D68975	RFETS	Solidified Organics	112	801	4860.0 U	540.00 U	13431	540.00 U	15676	540.00 U	540.00 U	2700.0 U	540.00 U
D68999	RFETS	Heterogeneous	116	821	3.60 U	0.40 U	0.67 J	2.00 J	0.60 J	0.50 J	0.40 U	2.00 U	0.40 U
D69091	RFETS	Heterogeneous	116	825	4.50 U	0.50 U	0.50 U	3.56 J	0.50 U	0.50 U	0.50 U	2.50 U	0.50 U
D69095	RFETS	Heterogeneous	116	833	4.86 U	0.54 U	0.54 U	32.79	0.54 U	0.54 U	0.54 U	2.70 U	0.54 U
D69113	RFETS	Heterogeneous	116	831	432.00 U	48.00 U	2954.0	48.00 U	48.00 U	48.00 U	48.00 U	240.00 U	48.00 U
D69250	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.47 J	0.67 J	0.24 J	0.10 U	0.10 U	0.50 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D69287	RFETS	Heterogeneous	116	821	1242.0 U	138.00 U	8372.6	138.00 U	138.00 U	138.00 U	138.00 U	690.00 U	138.00 U
D69306	RFETS	Solidified Organics	112	801	2250.0 U	250.00 U	13804	250.00 U	6213.5	250.00 U	250.00 U	1250.0 U	250.00 U
D69312	RFETS	Solidified Inorganics	111	800	2.00 U	0.40 U	1.11 J	1.39 J	0.40 U	0.57 J	0.40 U	4.80 U	0.69 J
D69364	RFETS	Heterogeneous	116	833	2.70 U	0.30 U	0.30 U	3.20	0.30 U	0.42 J	0.30 U	1.95 J	0.30 U
D69400	RFETS	Heterogeneous	116	831	333.00 U	37.00 U	2679.9	37.00 U	37.00 U	37.00 U	37.00 U	185.00 U	37.00 U
D69406	RFETS	Heterogeneous	116	831	450.00 U	50.00 U	3750.4	50.00 U	50.00 U	50.00 U	50.00 U	250.00 U	50.00 U
D69413	RFETS	Heterogeneous	116	831	5.40 U	0.60 U	15.20	0.60 U	0.60 U	0.60 U	0.60 U	3.00 U	0.60 U
D69418	RFETS	Heterogeneous	116	831	660.60 U	73.40 U	4816.7	73.40 U	73.40 U	73.40 U	73.40 U	699.21 J	73.40 U
D69431	RFETS	Heterogeneous	116	831	266.67 U	53.33 U	4070.6	53.33 U	53.33 U	53.33 U	53.33 U	586.66 U	53.33 U
D69518	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.36 J	2.40	0.28 J	0.20 U	0.20 U	1.00 U	0.20 U
D69602	RFETS	Heterogeneous	116	821	9.00 U	1.00 U	1.00 U	3.40 J	1.00 U	1.00 U	1.00 U	5.00 U	1.00 U
D69759	RFETS	Heterogeneous	116	833	2.70 U	0.30 U	20.43	2.40 J	0.34 J	0.30 U	0.30 U	1.53 J	7.59
D69855	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	1.01 J	8.75	0.74 J	0.28 J	0.20 U	1.00 U	0.20 U
D69877	RFETS	Heterogeneous	116	825	4.50 U	0.50 U	0.53 J	1.79 J	0.50 U	0.50 U	0.50 U	2.50 U	0.50 U
D69883	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	0.95 J	0.30 U	0.51 J	1.72 J	0.30 U	1.50 U	0.30 U
D69975	RFETS	Heterogeneous	116	821	6.30 U	0.70 U	4.64 J	4.42 J	0.81 J	0.70 U	0.70 U	3.50 U	0.70 U
D70063	RFETS	Heterogeneous	116	821	4.59 U	0.57 J	0.51 U	2.00 J	7.12	0.51 U	0.51 U	2.55 U	0.51 U
D70077	RFETS	Heterogeneous	116	831	540.00 U	60.00 U	3533.4	60.00 U	60.00 U	60.00 U	60.00 U	300.00 U	60.00 U
D70229	RFETS	Heterogeneous	116	831	1.80 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.00 U	0.20 U
D70353	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.20 J	1.94 J	0.65 J	0.20 U	0.20 U	5.36 J	0.20 U
D70370	RFETS	Heterogeneous	116	821	2.70 U	0.30 U	0.52 J	0.92 J	0.58 J	0.30 U	0.30 U	1.50 U	0.30 U
D70379	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.48 J	0.10 U	0.33 J	0.10 U	0.10 U	0.50 U	0.10 U
D70383	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.20 U	1.78 J	0.20 U	0.20 U	0.20 U	1.00 U	0.20 U
D70446	RFETS	Uncategorized Metal	117	480	5.00 U	5.85 J	1.00 U	1.00 U	58.86	1.00 U	1.00 U	12.00 U	1.00 U
D70448	RFETS	Heterogeneous	116	831	1350.0 U	150.00 U	8313.3	150.00 U	150.00 U	150.00 U	150.00 U	750.00 U	150.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D70455	RFETS	Heterogeneous	116	831	6.30 U	5.12 J	0.70 U	4.62 J	11.69	0.70 U	0.70 U	3.50 U	0.70 U
D70543	RFETS	Solidified Organics	112	801	7452.0 U	828.00 U	55410	828.00 U	62380	828.00 U	828.00 U	4140.0 U	828.00 U
D70661	RFETS	Filter	0	331	3.17 J	0.60 U	0.76 J	0.60 U	0.60 U	0.60 U	0.60 U	6.60 U	0.60 U
D70669	RFETS	Uncategorized Metal	117	480	0.90 U	0.10 U	0.10 U	0.10 U	0.13 J	0.10 U	0.10 U	0.54 J	0.10 U
D70675	RFETS	Solidified Organics	112	801	0.99 J	0.10 U	6.31	0.69 J	1.29	0.45 J	0.10 U	1.85 J	8.47
D70682	RFETS	Heterogeneous	116	831	405.00 U	45.00 U	2682.6	45.00 U	45.00 U	45.00 U	45.00 U	225.00 U	45.00 U
D70696	RFETS	Heterogeneous	116	821	5.40 U	0.60 U	0.60 U	3.33 J	0.60 U	0.60 U	0.60 U	3.00 U	0.60 U
D70734	RFETS	Heterogeneous	116	833	0.57 J	0.10 U	0.14 J	0.10 U	0.14 J	0.10 U	0.10 U	1.10 U	0.10 U
D70780	RFETS	Heterogeneous	116	832	0.50 U	0.10 U	0.10 U	0.10 U	0.13 J	0.10 U	0.10 U	1.10 U	0.10 U
D70856	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.21 J	0.52 J	0.23 J	1.21	0.10 U	0.94 J	0.10 U
D70882	RFETS	Heterogeneous	116	831	126.00 U	14.00 U	1277.8	14.00 U	14.00 U	14.00 U	14.00 U	70 00 U	14.00 U
D70937	RFETS	Filter	0	331	5.08 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	5.50 U	0.50 U
D71019	RFETS	Solidified Organics	112	801	11.70 U	1.30 U	21.30	1.30 U	1.32 J	1.30 U	1.30 U	6.50 U	97.64
D71020	RFETS	Solidified Organics	112	801	9988.2 J	911.50 U	44413	911.50 U	61914	911.50 U	911.50 U	32467 J	911.50 U
D71022	RFETS	Solidified Organics	112	801	6000.0 U	1200.0 U	32496	1200.0 U	66727	1200.0 U	1200.0 U	13200 U	1200.0 U
D71241	RFETS	Heterogeneous	116	833	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D71351	RFETS	Uncategorized Metal	117	480	0.67 J	0.18 J	0.10 U	0.10 U	0.20 J	0.10 U	0.10 U	1.20 U	0.10 U
D71354	RFETS	Uncategorized Metal	117	480	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U
D71385	RFETS	Heterogeneous	116	833	2.70 U	0.30 U	0.30 U	4.10	0.30 U	0.30 U	0.30 U	1.50 U	0.30 U
D71494	RFETS	Solidified Organics	112	801	1.07 J	0.10 U	1.69	0.42 J	0.25 J	0.23 J	0.10 U	3.13 J	10.16
D71504	RFETS	Solidified Organics	112	801	1.80 U	0.20 U	1.91 J	0.20 U	0.20 U	0.20 U	0.20 U	1.00 U	11.44
D71514	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.20 U	1.13 J	0.33 J	0.20 U	0.20 U	1.00 U	0.20 U
D71521	RFETS	Heterogeneous	116	825	1.80 U	0.20 U	0.20 U	1.00 J	0.33 J	0.20 U	0.20 U	1.00 U	0.20 U
D71638	RFETS	Uncategorized Metal	117	480	5.00 U	1.02 J	1.00 U	1.00 U	62.96	1.00 U	1.00 U	12.00 U	1.00 U
D71804	RFETS	Heterogeneous	116	832	0.81 J	0.60 J	0.23 J	0.10 U	0.10 U	2.07	0.70 J	1.20 U	0.10 U

Table [illegible]4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D71829	RFETS	Heterogeneous	116	852	1980.0 U	220.00 U	220.00 U	220.00 U	220.00 U	220.00 U	220.00 U	1100.0 U	220.00 U
D71838	RFETS	Heterogeneous	116	831	68.40 U	7.60 U	364.82	7.60 U	7.60 U	7.60 U	7.60 U	50.37 J	7.60 U
D71921	RFETS	Heterogeneous	116	833	0.50 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U	52.84 J	0.10 U
D71932	RFETS	Solidified Organics	112	801	39311 U	6023.4 J	85795	4367.9 U	88612	4367.9 U	4367.9 U	21839 U	4367.9 U
D71933	RFETS	Solidified Organics	112	801	0.50 U	0.10 U	2.59	0.10 U	0.89 J	0.10 U	0.10 U	1.10 U	10.21
D71934	RFETS	Solidified Organics	112	801	0.88 J	0.10 U	3.66	0.10 U	2.43	0.10 U	0.10 U	2.53 J	4.17
D71936	RFETS	Heterogeneous	116	833	195.00 U	21.67 U	1264.7	21.67 U	1946.0	21.67 U	21.67 U	108.34 U	21.67 U
D71937	RFETS	Heterogeneous	116	833	166.67 U	33.33 U	1343.4	33.33 U	2458.8	33.33 U	33.33 U	366.66 U	33.33 U
D71938	RFETS	Heterogeneous	116	833	16.20 U	1.80 U	97.42	1.80 U	69.15	1.80 U	1.80 U	9.00 U	1.80 U
D71940	RFETS	Solidified Organics	112	801	9000.0 U	1000.0 U	24298	1000.0 U	67524	1000.0 U	1000.0 U	5000.0 U	1000.0 U
D71941	RFETS	Solidified Organics	112	801	9000.0 U	1000.0 U	36373	1000.0 U	88979	1000.0 U	1000.0 U	6075.0 J	1000.0 U
D72010	RFETS	Heterogeneous	116	832	1.50 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	3.60 U	0.30 U
D72079	RFETS	Uncategorized Metal	117	480	58.50 U	6.50 U	544.22	6.50 U	6.50 U	6.50 U	6.50 U	32.50 U	6.50 U
D72127	RFETS	Solidified Organics	112	801	3.60 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	2.00 U	24.63
D72128	RFETS	Solidified Organics	112	801	3570.0 J	130.00 U	130.00 U	130.00 U	130.00 U	130.00 U	130.00 U	5061.2 J	130.00 U
D72131	RFETS	Heterogeneous	116	833	1.34 U	0.27 U	12.25	0.27 U	0.27 U	0.27 U	0.27 U	2.94 U	19.86
D72132	RFETS	Solidified Organics	112	801	316.85 J	48.00 U	48.00 U	48.00 U	48.00 U	48.00 U	48.00 U	1245.8 J	48.00 U
D72133	RFETS	Solidified Organics	112	801	1.80 U	0.20 U	0.93 J	0.20 U	1.52 J	0.20 U	0.20 U	3.84 J	1.32 J
D72136	RFETS	Solidified Organics	112	801	189.00 U	21.00 U	21.00 U	21.00 U	21.00 U	21.00 U	21.00 U	105.00 U	21.00 J
D72139	RFETS	Solidified Organics	112	801	17.10 U	1.90 U	8.18 J	1.90 U	12.29 J	1.90 U	1.90 U	9.50 U	3.72 J
D72178	RFETS	Heterogeneous	116	821	2.70 U	0.30 U	0.30 U	0.35 J	0.35 J	0.30 U	0.30 U	1.50 U	0.30 U
D72186	RFETS	Heterogeneous	116	821	1.80 U	0.20 U	0.46 J	0.56 J	0.45 J	0.20 U	0.20 U	1.00 U	0.20 U
D72195	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	3.12	1.68	0.22 J	0.10 U	0.10 U	0.50 U	0.10 U
D72255	RFETS	Heterogeneous	116	833	2.70 U	22.90	0.30 U	0.93 J	0.30 U	0.37 J	0.30 U	1.50 U	0.30 U
D72267	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.36 J	0.10 U	0.10 U	0.24 J	0.10 U	1.20 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D72293	RFETS	Heterogeneous	116	833	3.22 J	0.11 J	0.51 J	0.10 U	0.21 J	3.14	0.11 J	0.55 J	0.10 U
D72333	RFETS	Heterogeneous	116	831	2.70 U	0.30 U	0.30 J	1.13 J	0.31 J	0.30 U	0.30 U	1.50 U	0.30 U
D72339	RFETS	Heterogeneous	116	821	4.50 U	0.50 U	0.50 U	0.50 U	0.56 J	0.50 U	0.50 U	2.50 U	0.50 U
D72347	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.13 J	15.33	0.23 J	0.10 U	0.10 U	0.50 U	0.10 U
D72375	RFETS	Heterogeneous	116	831	720.00 U	80.00 U	4620.7	80.00 U	80.00 U	80.00 U	80.00 U	400.00 U	80.00 U
D72434	RFETS	Heterogeneous	116	831	1890.0 U	210.00 U	10516	210.00 U	210.00 U	210.00 U	210.00 U	2174.5 J	210.00 U
D72436	RFETS	Uncategorized Metal	117	480	2.00 J	0.30 U	20.40	0.30 U	0.30 U	0.30 U	0.30 U	11.10 J	0.60 J
D72542	RFETS	Heterogeneous	116	832	50.00 U	10.00 U	10.00 U	1394.3	10.00 U	10.00 U	10.00 U	110.00 U	10.00 U
D72545	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.12 J	0.21 J	0.10 U	0.15 J	0.10 U	1.20 U	0.10 U
D72546	RFETS	Heterogeneous	116	832	75.00 U	15.00 U	15.00 U	1801.2	15.00 U	15.00 U	15.00 U	165.00 U	15.00 U
D72566	RFETS	Solidified Organics	112	801	7.20 U	0.80 U	16.52	0.80 U	0.80 U	0.80 U	0.80 U	4.09 J	57.15
D72598	RFETS	Heterogeneous	116	821	5.40 U	0.60 U	0.60 U	2.29 J	1.16 J	1.70 J	0.60 U	4.14 J	0.60 U
D72618	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.17 J	0.22 J	0.30 J	0.10 U	0.10 U	0.50 U	0.10 U
D72619	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	0.99 J	0.10 U	0.23 J	0.10 U	0.10 U	0.83 J	1.75
D72623	RFETS	Solidified Organics	112	801	2.50 U	0.50 U	6.29	0.50 U	0.50 U	0.50 U	0.50 U	5.50 U	26.30
D72631	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	1.79	0.10 U	0.21 J	0.10 U	0.10 U	0.90 J	10.15
D72632	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	1.52	0.10 U	0.24 J	0.10 U	0.10 U	2.95 J	6.93
D72673	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	3.61	1.49 J	5.78	0.23 J	0.20 U	1.00 U	0.20 U
D72819	RFETS	Heterogeneous	116	833	3.60 U	3.26 J	0.82 J	1.89 J	0.49 J	0.47 J	0.40 U	2.00 U	0.40 U
D72822	RFETS	Heterogeneous	116	831	1.34 U	0.27 U	0.27 U	0.27 U	15.11	0.27 J	0.27 U	2.94 U	0.27 U
D72831	RFETS	Uncategorized Metal	117	480	20.00 U	4.00 U	305.00	4.00 U	4.00 U	4.00 U	4.00 U	48.00 U	4.00 U
D72887	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.15 J	0.87 J	0.30 J	0.10 U	0.10 U	0.50 U	0.10 U
D72923	RFETS	Heterogeneous	116	833	9.66 J	6.55	0.49 J	0.95 J	0.40 U	0.68 J	0.40 U	42.52 J	0.40 U
D72932	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	0.73 J	5.12	0.46 J	0.30 U	0.30 U	1.50 U	0.30 U
D73054	RFETS	Heterogeneous	0	336	566.67 U	2074.3	113.33 U	113.33 U	5153.2	113.33 U	113.33 U	1580.3 J	113.33 U

Table [illegible]-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D73074	RFETS	Heterogeneous	116	833	1.80 J	0.81 J	0.20 U	0.20 U	0.64 J	0.20 U	0.20 U	4.17 J	0.20 U
D73117	RFETS	Uncategorized Metal	117	480	2.00 U	0.40 U	30.42	0.40 U	0.40 U	0.40 U	0.40 U	4.80 U	0.40 U
D73123	RFETS	Heterogeneous	116	831	1134.0 U	126.00 U	7343.0	126.00 U	126.00 U	126.00 U	126.00 U	630.00 U	126.00 U
D73134	RFETS	Heterogeneous	116	831	360.00 U	72.00 U	3648.5	72.00 U	72.00 U	72.00 U	72.00 U	792.00 U	72.00 U
D73136	RFETS	Solidified Inorganics	111	807	0.50 U	0.10 U	0.10 U	0.18 J	0.10 U	0.10 U	0.10 U	1.20 U	0.10 U
D73274	RFETS	Heterogeneous	116	831	450.00 U	50.00 U	2711.7	50.00 U	50.00 U	50.00 U	50.00 U	250.00 U	50.00 U
D73285	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	1.53	0.39 J	0.10 J	0.10 U	0.10 U	2.15 J	10.59
D73293	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	3.18	0.10 U	2.42	0.10 U	0.10 U	1.17 J	3.25
D73295	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	1.55	0.10 U	0.86 J	0.10 U	0.10 U	0.50 U	2.35
D73296	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	2.51	0.10 J	0.14 J	0.10 U	0.10 U	0.61 J	0.95 J
D73301	RFETS	Solidified Organics	112	801	1.80 U	0.20 U	1.42 J	0.43 J	2.30	0.20 U	0.20 U	1.44 J	12.42
D73605	RFETS	Lead/Cadmium Metal	123	339	0.50 U	0.10 U	2.96	0.10 U	3.87	0.12 J	0.10 U	1.20 U	0.10 U
D73632	RFETS	Heterogeneous	116	825	6.30 U	0.70 U	33.16	0.70 U	0.70 U	0.70 U	0.70 U	3.50 U	35.70
D73667	RFETS	Solidified Organics	112	801	0.90 U	0.10 U	1.03	0.17 J	0.10 U	0.10 U	0.10 U	1.16 J	2.36
D73672	RFETS	Solidified Organics	112	801	0.90 U	0.24 J	1.75	0.29 J	0.19 J	0.10 U	0.10 U	0.50 U	2.27
D73745	RFETS	Heterogeneous	116	832	0.50 U	0.18 J	1.89	10.64	1.75	0.10 U	0.10 U	1.20 U	0.10 U
D73828	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.17 J	0.65 J	0.31 J	0.10 U	0.10 U	0.50 U	0.10 U
D73848	RFETS	Heterogeneous	116	821	1.20 U	0.13 U	0.21 J	1.46	0.25 J	0.13 U	0.13 U	0.67 U	0.13 U
D73987	RFETS	Lead/Cadmium Metal	123	339	1.50 U	0.30 U	0.30 U	0.30 U	1.36 J	0.30 U	0.30 U	3.60 U	0.30 U
D74007	RFETS	Uncategorized Metal	117	480	1.74 J	0.30 U	0.56 J	0.30 U	0.74 J	0.30 U	0.30 U	3.60 U	0.30 U
D74110	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.28 J	6.63	0.60 J	0.10 U	0.10 U	0.50 U	0.10 U
D74147	RFETS	Solidified Organics	112	801	7.20 U	0.80 U	36.24	0.80 U	0.80 U	0.80 U	0.80 U	4.00 U	2.73 J
D74156	RFETS	Solidified Organics	112	801	5.40 U	0.60 U	36.75	0.60 U	4.68 J	0.60 U	0.60 U	3.00 U	3.09 J
D74374	RFETS	Heterogeneous	116	833	0.55 J	0.13 J	0.45 J	0.88 J	1.87	0.10 U	0.10 U	1.10 U	1.83
D74683	RFETS	Heterogeneous	116	821	29.51 J	1.50 U	1.50 U	5.85 J	1.50 U	1.50 U	1.50 U	7.50 U	1.50 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Trl chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D74904	RFETS	Heterogeneous	116	832	0.50 U	0.10 U	0.10 U	0.39 J	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D74913	RFETS	Heterogeneous	116	832	2.70 U	0.30 U	0.30 U	1.50 J	0.30 U	0.30 U	0.30 U	1.50 U	0.30 U
D75039	RFETS	Heterogeneous	116	832	2.70 U	0.30 U	0.35 J	0.30 U	0.30 U	0.30 U	0.30 U	1.99 J	0.30 U
D75265	RFETS	Heterogeneous	116	833	14.89 J	1.20 U	1.20 U	3.95 J	63.67	1.20 U	1.20 U	6.00 U	1.20 U
D75267	RFETS	Heterogeneous	116	832	1.80 U	0.20 U	0.20 U	2.39	0.20 U	0.20 U	0.20 U	1.27 J	0.20 U
D75278	RFETS	Heterogeneous	116	832	2.70 U	0.30 U	0.30 U	3.74	0.30 U	0.30 U	0.30 U	3.85 J	0.30 U
D75399	RFETS	Heterogeneous	116	833	3.60 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	7.01 J	0.40 U
D75564	RFETS	Heterogeneous	116	825	1.20 U	0.13 U	0.13 U	0.85 J	0.24 J	0.13 U	0.13 U	0.92 J	0.13 U
D75868	RFETS	Heterogeneous	116	825	5.40 U	0.60 U	0.60 U	2.53 J	0.60 U	0.60 U	0.60 U	3.56 J	0.60 U
D75888	RFETS	Heterogeneous	116	833	1.18 J	0.10 U	0.20 J	0.10 U	0.31 J	0.13 J	0.10 U	0.50 U	0.10 U
D75926	RFETS	Heterogeneous	116	832	10.19 J	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	2.00 U	0.40 U
D75930	RFETS	Heterogeneous	116	832	500.00 U	100.00 U	100.00 U	100.00 U	6912.5	100.00 U	100.00 U	1100.0 U	100.00 U
D75947	RFETS	Heterogeneous	116	832	0.90 U	0.29 J	0.10 U	0.87 J	0.40 J	0.10 U	0.10 U	0.99 J	0.10 U
D75976	RFETS	Heterogeneous	116	833	3.37 J	0.13 U	0.13 U	1.50	0.13 U	0.13 U	0.13 U	1.46 U	0.13 U
D76044	RFETS	Heterogeneous	116	831	3.63 J	0.27 U	0.27 U	2.39 J	0.27 U	0.27 U	0.27 U	7.19 J	0.27 U
D76050	RFETS	Heterogeneous	116	832	1.02 J	0.10 U	0.10 U	0.99 J	0.10 U	0.10 U	0.10 U	0.73 J	0.10 U
D76054	RFETS	Heterogeneous	116	831	2.70 U	0.30 U	0.30 U	5.36	0.30 U	0.30 U	0.30 U	1.50 U	0.30 U
D76098	RFETS	Heterogeneous	116	832	1.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.40 U	0.20 U
D76135	RFETS	Solidified Organics	112	801	133.34 U	26.67 U	257.42 J	26.67 U	1583.9	26.67 U	26.67 U	293.34 U	26.67 U
D76136	RFETS	Solidified Inorganics	111	803	2.00 U	0.40 U	41.04	0.40 U	10.00	0.40 U	0.40 U	4.40 U	1.10 J
D76138	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D76142	RFETS	Solidified Inorganics	111	800	1.36 J	0.24 U	7.62	0.24 U	0.84 J	1.82 J	0.24 U	2.64 U	0.24 U
D76143	RFETS	Solidified Inorganics	111	803	1.50 U	0.30 U	31.39	0.30 U	4.26	0.30 U	0.30 U	3.30 U	0.87 J
D76144	RFETS	Solidified Inorganics	111	800	3.34 U	0.67 U	48.10	0.67 U	0.67 U	0.68 J	0.67 U	7.34 U	2.78 J
D76146	RFETS	Solidified Inorganics	0	292	0.50 U	0.10 U	0.18 J	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Trl chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D76147	RFETS	Solidified Inorganics	111	803	1.39 J	0.10 U	2.44	0.13 J	0.15 J	0.15 J	0.10 U	1.84 J	0.13 J
D76182	RFETS	Solidified Inorganics	111	800	6.30 U	0.70 U	0.70 U	0.70 U	1.04 J	4.03 J	0.70 U	3.50 U	0.70 U
D76183	RFETS	Solidified Inorganics	111	800	0.67 U	0.13 U	4.25	0.13 U	0.13 U	0.93 J	0.13 U	1.46 U	0.13 U
D76185	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.55 J	0.10 U
D76187	RFETS	Solidified Inorganics	111	803	2.50 U	0.50 U	49.01	0.50 U	11.65	0.50 U	0.50 U	5.50 U	1.46 J
D76189	RFETS	Solidified Inorganics	111	803	10.00 U	2.00 U	165.71	2.00 U	2.00 U	2.00 U	2.00 U	22.00 U	7.50 J
D76192	RFETS	Solidified Inorganics	111	803	0.50 U	0.10 U	0.93 J	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.57 J
D76194	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.10 U
D76195	RFETS	Solidified Organics	112	801	4320.0 U	480.00 U	13758	480.00 U	6208.6	480.00 U	480.00 U	3249.5 J	480.00 U
D76196	RFETS	Solidified Organics	112	801	833.34 U	166.67 U	1020.1 J	166.67 U	12990	166.67 U	166.67 U	1833.3 U	166.67 U
D76199	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.13 J	0.10 U
D76200	RFETS	Solidified Organics	112	801	3166.6 U	633.33 U	4123.0 J	633.33 U	43418	633.33 U	633.33 U	6966.6 U	633.33 U
D76203	RFETS	Solidified Organics	112	801	1116.6 J	223.33 U	3535.3	223.33 U	13365	223.33 U	223.33 U	2456.6 U	223.33 U
D76205	RFETS	Solidified Inorganics	111	800	0.50 U	0.10 U	0.62 J	0.18 J	0.86 J	0.46 J	0.10 U	1.10 U	0.10 U
D76206	RFETS	Solidified Inorganics	111	803	2.00 U	0.40 U	28.65	0.40 U	0.40 U	0.40 U	0.40 U	4.40 U	0.87 J
D76217	RFETS	Heterogeneous	116	833	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	12.29 J	1.00 U
D76282	RFETS	Solidified Inorganics	111	800	56.67 U	11.33 U	118.35	11.33 U	675.83	11.33 U	11.33 U	124.66 U	11.33 U
D76283	RFETS	Solidified Organics	112	801	450.00 U	90.00 U	1068.5	90.00 U	5328.1	90.00 U	90.00 U	990.00 U	90.00 U
D76287	RFETS	Solidified Inorganics	111	800	26.67 U	5.33 U	72.31	5.33 U	402.58	5.33 U	5.33 U	58.66 U	5.33 U
D76293	RFETS	Heterogeneous	116	833	3.60 U	0.40 U	5.02	0.40 U	22.39	0.40 U	0.40 U	3.53 J	0.40 U
D76302	RFETS	Solidified Inorganics	111	800	15.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	33.00 U	3.00 U
D76303	RFETS	Solidified Inorganics	111	803	1.34 U	0.27 U	21.61	0.27 U	0.27 U	0.27 U	0.27 U	2.94 U	0.70 J
D76305	RFETS	Solidified Inorganics	111	800	60.00 U	12.00 U	91.70 J	12.00 U	494.26	12.00 U	12.00 U	132.00 U	12.00 U
D76306	RFETS	Heterogeneous	116	833	7.20 U	0.80 U	17.00	0.80 U	37.08	0.80 U	0.80 U	5.52 J	0.80 U
D76362	RFETS	Heterogeneous	116	833	33.34 U	554.17	6.67 U	6.67 U	6.67 U	6.67 U	6.67 U	183.17 J	6.67 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D76406	RFETS	Heterogeneous	116	831	0.90 U	0.10 U	0.45 J	0.10 U	0.37 J	0.10 U	0.10 U	0.50 U	0.10 U
D76437	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.20 U	2.24	0.20 U	0.20 U	0.20 U	1.44 J	0.20 U
D76443	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	0.30 U	0.63 J	0.33 J	0.30 U	0.30 U	1.50 U	0.30 U
D76452	RFETS	Heterogeneous	116	825	1.70 J	0.20 U	0.20 J	0.20 U	0.40 J	0.20 U	0.20 U	1.10 J	0.20 U
D76454	RFETS	Heterogeneous	116	825	0.90 U	0.10 U	0.12 J	0.66 J	0.21 J	0.10 U	0.10 U	0.50 U	0.10 U
D76456	RFETS	Heterogeneous	116	825	0.90 U	0.10 U	0.13 J	0.72 J	0.23 J	0.10 U	0.10 U	1.95 J	0.10 U
D76461	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	0.30 U	1.89 J	0.30 U	0.30 U	0.30 U	1.50 U	0.39 J
D76463	RFETS	Heterogeneous	116	825	2.70 U	0.30 U	0.33 J	1.09 J	0.31 J	0.30 U	0.30 U	1.50 U	0.30 U
D76470	RFETS	Solidified Inorganics	111	803	0.50 U	0.10 U	0.83 J	0.10 U	0.10 U	0.10 U	0.10 U	1.10 U	0.28 J
D76587	RFETS	Heterogeneous	116	825	0.90 U	0.10 U	0.20 J	1.07	0.69 J	0.10 U	0.10 U	0.90 U	0.10 U
D76596	RFETS	Heterogeneous	116	825	3.13 J	0.10 U	0.20 J	1.67	0.97 J	0.10 U	0.10 U	5.14 J	0.10 U
D76627	RFETS	Heterogeneous	116	825	0.90 U	0.10 U	0.10 J	0.91 J	0.21 J	0.10 U	0.10 U	0.79 J	0.10 U
D76630	RFETS	Heterogeneous	116	825	2.01 J	0.10 U	0.20 J	0.89 J	0.65 J	0.10 U	0.10 U	1.30 J	0.10 U
D76635	RFETS	Heterogeneous	116	825	1.80 U	0.20 U	0.25 J	0.61 J	0.81 J	0.20 U	0.20 U	1.71 J	0.20 U
D76652	RFETS	Heterogeneous	116	833	0.66 J	0.10 U	0.11 J	0.47 J	0.10 U	0.10 U	0.10 U	2.98 J	0.10 U
D76677	RFETS	Solidified Inorganics	111	800	21.60 U	2.40 U	199.52	2.40 U	2.40 U	2.40 U	2.40 U	12.00 U	14.06 J
D76710	RFETS	Heterogeneous	116	833	18.00 U	136.89	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	10.00 U	2.00 U
D76712	RFETS	Heterogeneous	116	833	2.70 U	0.95 J	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	1.50 U	0.30 U
D76715	RFETS	Heterogeneous	116	832	1.80 U	0.20 U	0.20 U	1.88 J	0.20 U	0.20 U	0.20 U	2.35 J	0.20 U
D76811	RFETS	Heterogeneous	116	832	2.46 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	8.62 J	0.20 U
D76908	RFETS	Heterogeneous	116	833	0.90 U	0.10 U	0.14 J	0.66 J	0.79 J	0.10 U	0.10 U	0.50 U	0.32 J
D76911	RFETS	Heterogeneous	116	832	1.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.20 U	0.20 U
D77088	RFETS	Heterogeneous	116	833	2.93 J	0.20 U	0.20 U	0.20 U	0.30 J	0.20 U	0.20 U	2.20 J	0.20 U
D77227	RFETS	Heterogeneous	116	833	2.00 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	4.40 U	0.40 U
D77285	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.27 J	1.18 J	0.20 U	0.20 U	0.20 U	1.00 U	0.20 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl ethyl Ketone	Chloroform	1,1,1-Tri chloro-ethane	Cyclo-hexane	Carbon Tetra-chloride	Benzene	1,2-Di-chloro-ethane	1-Butanol	Trichloro-ethene
D77621	RFETS	Heterogeneous	0	336	1.34 U	0.27 U	0.27 U	0.27 U	19.30	0.27 U	0.27 U	3.20 U	0.27 U
D80765	RFETS	Heterogeneous	116	833	1.80 U	0.20 U	0.20 U	2.61	0.20 U	0.20 U	0.20 U	2.79 J	0.20 U
D80772	RFETS	Heterogeneous	116	833	9.00 U	1.00 U	47.56	5.62 J	1.00 U	1.00 U	1.00 U	5.00 U	13.18
D80774	RFETS	Heterogeneous	116	833	27.90 U	3.10 U	53.30	3.10 U	127.73	3.10 U	3.10 U	15.50 U	3.10 U
D80776	RFETS	Heterogeneous	116	832	7.59 J	2.48	0.10 U	0.10 U	0.20 J	1.23	0.18 J	5.18 J	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
000365	RFETS	Uncategorized Metal	217	480	17.00 U	15.00	11.00 U	12.00 U	13.00 U	13.00 U	13.00 U	11.00 U
000371	INEL	Graphite	215	300	17.00 U	3.30	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
000373	INEL	Graphite	215	300	17.00 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
000384	RFETS	Uncategorized Metal	217	320	5.00 U	0.29	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
000393	INEL	Uncategorized Metal	217	480	17.00 U	4.80	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
000401	RFETS	Inorganic Non-metal	222	371	5.00 U	2.60	0.01 U	0.01 U	0.02 U	0.02 J	0.02 U	0.01 U
000403	INEL	Inorganic Non-metal	218	440	17.00 U	1.50	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
000405	RFETS	Uncategorized Metal	217	480	5.00 U	27.00	0.79 U	0.93 U	0.99 U	0.99 U	0.99 U	0.83 U
000436	INEL	Solidified Organics	212	3	17.00 U	39.00 U	30.00 U	38.00 U	36.00 U	44.00 U	42.00 U	45.00 U
000442	INEL	Solidified Inorganics	213	4	51.00 U	6.50	0.04 U	0.05 U	0.05 U	0.10 J	0.05 U	0.06 U
000446	RFETS	Solidified Inorganics	211	1	5.00 U	0.56	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U
000478	RFETS	Solidified Inorganics	211	1	5.00 U	0.48	0.01 U	0.01 U	0.02 J	0.04 J	0.01 J	0.01 U
000501	INEL	Graphite	215	300	17.00 U	0.03 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
000558	INEL	Heterogeneous	221	464	17.00 U	16.00	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
000567	RFETS	Inorganic Non-metal	222	371	5.00 U	3.70	1.40 U	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
000568	RFETS	Solidified Organics	226	432	17.00 U	67.00	0.88 U	1.00 U	1.10 U	1.10 U	1.10 U	0.92 U
000593	INEL	Solidified Inorganics	211	7	17.00 U	2.40	0.01 U	0.02 U	0.02 U	0.05 J	0.02 J	0.02 U
000613	INEL	Graphite	215	300	17.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
000630	INEL	Solidified Inorganics	213	4	51.00 U	7.40 B	0.05 U	0.06 U	0.06 U	0.09 J	0.07 U	0.07 U
000648	RFETS	Solidified Inorganics	213	4	70.00 U	1.10	0.03 U	0.03 U	0.03 U	0.08 JD	0.03 U	0.03 U
000675	RFETS	Inorganic Non-metal	218	440	5.00 U	45.00	0.13 U	0.16 U	0.17 U	0.17 U	0.17 U	0.14 U
000823	RFETS	Solidified Inorganics	213	4	120.00 U	4.60	0.02 U	0.02 U	0.02 U	0.05 J	0.02 U	0.02 U
000828	INEL	Graphite	215	300	17.00 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
001016	INEL	Graphite	215	300	17.00 U	0.08 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
001024	INEL	Graphite	215	300	17.00 U	0.07 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
001084	INEL	Solidified Inorganics	213	4	17.00 U	10.00 B	0.02 U	0.02 U	0.03 J	0.07 JB	0.02 U	0.02 U
001139	INEL	Solidified Inorganics	211	7	17.00 U	3.60	0.11 U	0.14 U	0.14 U	0.17 U	0.16 U	0.17 U
001157	INEL	Combustible	223	339	17.00 U	1.80	0.03 U	0.03 U	0.08 U	0.19 J	0.20 J	0.03 U
001161	INEL	Graphite	215	300	17.00 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U	0.05 U
001258	RFETS	Solidified Inorganics	211	1	5.00 U	1.60	0.01 U	0.01 U	0.06 J	0.14	0.02 J	0.01 U
001370	INEL	Combustible	223	339	17.00 U	1.10	0.11 U	0.12 U	0.13 U	0.27 J	0.25 J	0.16 U
001377	INEL	Combustible	223	339	17.00 U	7.90	0.03 U	0.03 U	0.37	0.96	0.81	0.03 U
001410	INEL	Solidified Inorganics	214	292	17.00 U	29.00	0.11 U	0.13 U	0.13 U	0.13 U	0.13 U	0.11 U
001437	RFETS	Solidified Inorganics	211	7	5.00 U	2.40	0.01 U	0.01 U	0.01 U	0.03 J	0.01 U	0.01 U
001475	RFETS	Solidified Inorganics	211	1	15.00 J	13.00	0.18 U	0.21 U	0.85 JD	2.80 D	0.22 U	0.18 U
001493	RFETS	Solidified Inorganics	211	1	5.00 U	1.10	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U
001619	INEL	Graphite	215	300	17.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
001625	INEL	Graphite	215	300	17.00 U	0.08 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
001633	INEL	Solidified Organics	226	432	17.00 U	4.20 J	0.63 U	0.74 U	0.78 U	0.78 U	0.78 U	0.66 U
001655	INEL	Combustible	223	339	17.00 U	2.40 U	1.70 U	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
001662	INEL	Graphite	215	300	17.00 U	0.06 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
001663	RFETS	Solidified Organics	226	432	17.00 U	19.00	0.38 U	0.44 U	0.47 U	0.47 U	0.47 U	0.40 U
001667	INEL	Graphite	215	300	17.00 U	0.34 J	0.01 U	0.02 U	0.12 J	0.02 U	0.02 U	0.02 U
001670	RFETS	Salt Waste	224	411	5.00 U	10.00	0.03 U	0.39 U	0.04 U	0.05 J	0.04 U	0.04 U
001677	INEL	Heterogeneous	221	302	17.00 U	9.70	0.73 J	0.42 U	0.39 U	0.48 U	0.46 U	0.49 U
001678	RFETS	Combustible	223	339	5.00 U	18.00	0.11 J	0.10 U	0.11 U	0.20 J	0.11 U	0.09 U
001689	INEL	Heterogeneous	221	302	17.00 U	21.00 E	0.03 U	0.04 U	0.19 J	0.39 J	0.09 J	0.03 U
001692	RFETS	Solidified Organics	226	432	17.00 U	22.00	0.23 U	0.27 U	0.28 U	0.28 U	0.28 U	0.24 U
001695	INEL	Combustible	223	339	1.10 U	23.00	1.40 U	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
001697	INEL	Graphite	215	300	17.00 U	0.13 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
001751	RFETS	Uncategorized Metal	217	320	5.00 U	2.60	0.01 U	0.01 U	0.04 J	0.13	0.14	0.01 U
001752	INEL	Graphite	215	300	17.00 U	0.06 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
001754	INEL	Uncategorized Metal	217	320	17.00 U	13.00	0.05 U	0.07 U	0.21 J	0.70 J	0.19 J	0.03 U
001757	INEL	Inorganic Non-metal	222	371	17.00 U	0.36	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
001773	INEL	Graphite	215	300	17.00 U	0.05 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
001779	INEL	Graphite	215	300	34.00 U	0.11 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
001784	INEL	Combustible	223	339	17.00 U	1.90	0.03 U	0.03 U	0.05 J	0.09 J	0.09 J	0.03 U
001813	INEL	Solidified Inorganics	213	4	17.00 U	6.60 B	4.00 U	5.10 U	4.80 U	6.00 U	5.60 U	6.00 U
001873	INEL	Solidified Inorganics	214	292	17.00 U	5.70	0.03 U	0.04 U	0.04 U	0.04 U	0.04 U	0.03 U
001899	RFETS	Solidified Inorganics	211	3	5.00 U	170.00	120.00 U	140.00 U	150.00 U	150.00 U	150.00 U	120.00 U
001900	INEL	Solidified Inorganics	214	292	17.00 U	8.00	0.06 J	0.04 U	0.04 U	0.04 U	0.04 U	0.03 U
001919	RFETS	Uncategorized Metal	217	320	5.00 U	0.30	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
001937	RFETS	Solidified Organics	212	3	5.00 U	20.00	14.00 U	16.00 U	18.00 U	18.00 U	18.00 U	15.00 U
002013	RFETS	Solidified Organics	212	3	5.00 U	14.00	10.00 U	12.00 U	12.00 U	12.00 U	12.00 U	10.00 U
002046	INEL	Solidified Organics	212	3	17.00 U	33.00 U	25.00 U	32.00 U	30.00 U	37.00 U	35.00 U	38.00 U
002065	INEL	Solidified Inorganics	214	292	5.00 U	27.00 U	0.09	0.11 U	0.12 U	0.12 U	0.12 U	0.10 U
002084	INEL	Solidified Inorganics	213	4	17.00 U	0.54 JB	0.03 U	0.03 U	0.03 U	0.06 JB	0.04 U	0.04 U
002220	RFETS	Uncategorized Metal	217	481	5.00 U	0.06	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
002222	INEL	Graphite	215	300	17.00 U	0.09 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
002338	RFETS	Inorganic Non-metal	222	371	17.00 U	5.10	0.71 U	0.83 U	0.88 U	0.88 U	0.88 U	0.74 U
002354	INEL	Combustible	223	339	17.00 U	1.30	0.06 U	0.06 U	0.07 U	0.08 U	0.09 J	0.09 U
002363	INEL	Inorganic Non-metal	222	371	17.00 U	0.28 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
002365	INEL	Uncategorized Metal	217	480	17.00 U	1.80	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
002542	INEL	Solidified Organics	212	3	17.00 U	7.10 U	5.50 U	6.90 U	6.50 U	8.10 U	7.60 U	8.10 U
002678	RFETS	Solidified Organics	226	432	17.00 U	6.20	14.00 U	0.95 U	1.00 U	1.00 U	1.00 U	0.84 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
002791	INEL	Inorganic Non-metal	222	371	17.00 U	4.30	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
002797	RFETS	Solidified Organics	226	432	17.00 U	57.00	0.40 U	0.47 U	0.50 U	0.50 U	0.50 U	0.42 U
002814	RFETS	Solidified Inorganics	211	7	5.00 U	2.60	0.18 U	0.22 U	0.23 U	0.23 U	0.23 U	0.19 U
003017	INEL	Solidified Inorganics	211	1	5.00 U	5.00	0.05 U	0.05 U	0.06 U	0.06 U	0.06 U	0.05 U
003088	INEL	Inorganic Non-metal	222	371	17.00 U	4.20	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
003091	RFETS	Inorganic Non-metal	222	371	17.00 U	0.59	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
003111	INEL	Inorganic Non-metal	222	371	15.00 U	2.00	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
003121	RFETS	Solidified Inorganics	211	7	5.00 U	1.60	0.12 U	0.14 U	0.15 U	0.15 U	0.15 U	0.13 U
003129	RFETS	Solidified Inorganics	211	7	5.00 U	1.80	0.02 U	0.02 U	0.14 J	0.46	0.05 J	0.02 U
003130	RFETS	Solidified Inorganics	211	7	5.00 U	2.20	0.04 U	0.04 U	0.06 JD	0.22 JD	0.05 U	0.04 U
003173	RFETS	Solidified Inorganics	211	7	5.00 U	2.50	0.02 U	0.02 U	0.02 U	0.06 J	0.02 U	0.02 U
003181	RFETS	Solidified Inorganics	211	7	5.00 U	2.00	0.01 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U
003189	INEL	Solidified Organics	212	3	17.00 U	72.00 U	56.00 U	71.00 U	66.00 U	82.00 U	78.00 U	83.00 U
003192	RFETS	Solidified Inorganics	211	7	5.00 U	1.70	0.21 U	0.24 U	0.26 U	0.26 U	0.26 U	0.22 U
003215	RFETS	Solidified Inorganics	211	7	5.00 U	2.10	0.01 U	0.01 U	0.02 J	0.08 J	0.02 U	0.01 U
003277	RFETS	Solidified Inorganics	211	1	5.00 U	0.23	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U
003394	RFETS	Solidified Inorganics	211	7	5.00 U	1.80	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
003406	RFETS	Solidified Inorganics	211	7	5.00 U	0.86	0.01 J	0.01 U	0.01 U	0.03 J	0.01 J	0.01 U
003455	RFETS	Solidified Inorganics	211	3	5.00 U	320.00	220.00 U	260.00 U	280.00 U	280.00 U	280.00 U	240.00 U
003547	RFETS	Solidified Inorganics	211	7	5.00 U	0.91	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
003577	RFETS	Solidified Inorganics	211	1	5.00 U	1.70	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U
003854	INEL	Solidified Organics	212	3	17.00 U	33.00 U	26.00 U	32.00 U	30.00 U	38.00 U	36.00 U	38.00 U
003890	INEL	Solidified Inorganics	111	7	5.00 U	1.80	0.03 U	0.03 U	0.03 U	0.03 J	0.03 U	0.03 U
003921	INEL	Solidified Inorganics	111	7	5.00 U	2.00	0.03 U	0.04 U	0.04 U	0.07 J	0.04 U	0.03 U
003991	INEL	Combustible	223	339	17.00 U	0.71 J	0.02 U	0.02 U	0.05 J	0.08 J	0.11 J	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
003997	INEL	Combustible	223	339	17.00 U	5.10	0.04 U	0.04 U	0.14 J	0.33 J	0.33 J	0.06 U
004099	INEL	Solidified Inorganics	211	1	5.00 U	1.90	0.02 J	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U
004111	RFETS	Salt Waste	224	411	5.00 U	5.00	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
004112	INEL	Graphite	215	300	17.00 U	0.07 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
004123	INEL	Combustible	223	339	17.00 U	1.50	0.02 U	0.02 U	0.10 J	0.24 J	0.27 J	0.03 U
004125	INEL	Uncategorized Metal	217	480	17.00 U	1.80	0.03 U	0.03 U	0.03 U	0.03 J	0.03 U	0.03 U
004150	INEL	Graphite	215	300	15.00 U	0.02 U	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
004160	INEL	Combustible	223	339	17.00 U	130.00 U	110.00 U	120.00 U	130.00 U	150.00 U	130.00 U	160.00 U
004166	INEL	Inorganic Non-metal	222	371	17.00 U	0.31 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
004186	INEL	Combustible	223	339	17.00 U	2.00	0.02 U	0.02 U	0.06 J	0.17 J	0.13 J	0.03 U
004195	RFETS	Salt Waste	224	411	5.00 U	1.20	0.01 U	0.01 U	0.01 U	0.01 J	0.01 U	0.01 U
004196	INEL	Graphite	215	300	17.00 U	0.26 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
004206	INEL	Combustible	223	339	17.00 U	1.40	0.02 U	0.02 U	0.06 J	0.09 J	0.12 J	0.02 U
004208	INEL	Graphite	215	300	51.00 U	0.18 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
004283	INEL	Solidified Inorganics	211	1	17.00 U	1.10	0.01 U	0.02 U	0.14 J	0.40 J	0.07 J	0.02 U
004326	INEL	Solidified Inorganics	213	4	17.00 U	2.70 B	0.01 U	0.02 U	0.09 J	0.35 JB	0.13 J	0.02 U
004393	INEL	Solidified Inorganics	211	1	5.00 U	2.10	0.02 U	0.02 U	0.02 U	0.03 J	0.02 U	0.02 U
004410	INEL	Solidified Inorganics	211	1	5.00 U	4.10	0.03 U	0.03 U	0.03 U	0.04 J	0.03 U	0.03 U
004495	INEL	Solidified Inorganics	213	4	17.00 U	2.50	0.01 U	0.02 U	0.02 U	0.02 J	0.02 U	0.02 U
004516	INEL	Solidified Inorganics	211	1	5.00 U	5.40	0.03 U	0.03 U	0.03 U	0.10 J	0.03 U	0.03 U
004884	INEL	Solidified Inorganics	213	4	17.00 U	5.10	0.02 U	0.02 U	0.04 J	0.13 J	0.03 J	0.03 U
004963	INEL	Combustible	223	339	17.00 U	10.00	0.06 U	0.06 U	0.21 J	0.57 J	0.23 J	0.09 U
004968	RFETS	Uncategorized Metal	217	320	5.00 U	170.00	0.49 U	0.58 U	0.62 U	0.62 U	0.62 U	0.52 U
004981	RFETS	Uncategorized Metal	217	320	5.00 U	0.22	0.01 U	0.01 U	0.01 U	0.01 J	0.01 U	0.01 U
004988	RFETS	Salt Waste	224	411	5.00 U	6.50	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
005006	RFETS	Salt Waste	224	411	5.00 U	5.00	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
005012	INEL	Combustible	223	339	17.00 U	0.31 J	0.01 U	0.02 U	0.04 J	0.05 J	0.02 J	0.02 U
005015	INEL	Solidified Organics	226	432	17.00 U	4.30 J	1.30 U	1.50 U	1.60 U	1.60 U	1.60 U	1.30 U
005235	INEL	Solidified Organics	226	432	17.00 U	5.70	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
005262	INEL	Solidified Organics	212	3	17.00 U	200.00 U	160.00 U	200.00 U	190.00 U	230.00 U	220.00 U	240.00 U
005358	INEL	Solidified Inorganics	211	1	17.00 U	6.90	0.01 U	0.02 U	0.45 J	1.70	0.30 J	0.02 U
005398	INEL	Solidified Inorganics	211	1	5.00 U	3.60	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
005415	INEL	Solidified Inorganics	211	1	5.00 U	5.90	0.03 U	0.03 U	0.03 U	0.07 J	0.03 U	0.03 U
005530	INEL	Graphite	215	303	15.00 U	0.98 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
005535	INEL	Solidified Organics	226	432	17.00 U	15.00 D	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U
005735	INEL	Solidified Inorganics	211	7	5.00 U	3.80	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
005738	INEL	Solidified Inorganics	211	7	5.00 U	3.40	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
006242	INEL	Inorganic Non-metal	222	371	17.00 U	1.70	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
006252	RFETS	Lead/Cadmium Metal	123	339	5.00 U	5.80	3.30 U	3.90 U	4.20 U	4.20 U	4.20 U	3.50 U
006325	RFETS	Solidified Inorganics	213	4	100.00 U	3.30	0.01 U	0.01 U	0.02 J	0.05 J	0.02 J	0.01 U
006669	INEL	Solidified Inorganics	214	292	5.00 U	38.00	0.13 U	0.15 U	0.16 U	0.16 U	0.16 U	0.13 U
006773	RFETS	Solidified Inorganics	213	4	120.00 U	3.40	0.09 U	0.11 U	0.12 U	0.14 J	0.12 U	0.10 U
006857	INEL	Combustible	223	339	18.00 U	7.20	0.02 U	0.02 U	0.02 J	0.06 J	0.05 J	0.03 U
006865	RFETS	Solidified Organics	226	432	5.00 U	18.00	0.07 U	0.08 U	0.08 U	0.08 U	0.08 U	0.07 U
006876	INEL	Filter	219	335	17.00 U	0.75 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
006879	INEL	Solidified Organics	226	432	17.00 U	19.00	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
006886	INEL	Solidified Organics	226	432	17.00 U	6.20	0.82 J	0.33 U	0.34 U	0.38 J	0.34 U	0.29 U
007034	INEL	Combustible	216	337	17.00 U	3.30	1.80 U	2.10 U	2.20 U	2.20 U	2.20 U	1.90 U
007146	INEL	Inorganic Non-metal	222	371	17.00 U	2.10 U	3.30	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
007170	INEL	Combustible	216	337	17.00 U	0.94 J	0.37 J	0.34 U	0.36 U	0.41 U	0.37 U	0.68 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
007231	INEL	Filter	219	338	17.00 U	0.29 J	0.67 J	0.15 U	0.16 U	0.19 U	0.17 U	0.20 U
007511	INEL	Inorganic Non-metal	122	374	17.00 U	2.90	0.03 U	0.04 U	0.16 J	0.58	0.29 J	0.03 U
007518	INEL	Inorganic Non-metal	122	374	17.00 U	6.60	0.05 U	0.06 U	0.06 U	0.13 J	0.08 J	0.05 U
007667	INEL	Salt Waste	124	411	5.00 U	0.43	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
007920	INEL	Filter	121	302	17.00 U	53.00	0.20 U	0.24 U	0.25 U	0.25 U	0.25 U	0.21 U
008203	INEL	Inorganic Non-metal	118	440	17.00 U	13.00	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U
008207	INEL	Heterogeneous	116	336	17.00 U	2.30	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
008218	INEL	Heterogeneous	116	330	17.00 U	2.90	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
008269	INEL	Uncategorized Metal	117	320	17.00 U	34.00 D	0.16 U	0.19 U	0.28 JD	0.85 JD	0.22 JD	0.17 U
008287	INEL	Inorganic Non-metal	122	374	17.00 U	1.00	0.03 U	0.03 U	1.50	5.10	2.30	0.03 U
008359	INEL	Heterogeneous	116	330	17.00 U	40.00	0.16 U	0.19 U	0.20 U	0.20 U	0.20 U	0.17 U
008383	INEL	Lead/Cadmium Metal	123	339	5.00 U	12.00 J	4.40 U	5.20 U	5.50 U	5.50 U	5.50 U	4.60 U
008848	INEL	Inorganic Non-metal	218	440	17.00 U	5.70	0.14 U	0.18 U	0.17 U	0.21 U	0.20 U	0.22 J
008859	INEL	Inorganic Non-metal	218	440	17.00 U	7.40	0.38 U	0.44 U	0.47 U	0.76 J	0.47 U	0.40 U
008860	INEL	Uncategorized Metal	217	480	17.00 U	8.40	0.96 U	1.10 U	1.20 U	1.20 U	1.20 U	1.00 U
008864	INEL	Uncategorized Metal	217	480	17.00 U	2.40	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
008872	INEL	Solidified Inorganics	214	292	5.00 U	6.60	0.03 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
008874	RFETS	Uncategorized Metal	217	480	5.00 U	42.00	30.00 U	35.00 U	37.00 U	37.00 U	37.00 U	31.00 U
008878	INEL	Uncategorized Metal	217	480	17.00 U	5.80 U	4.00 U	4.70 U	5.00 U	5.00 U	5.00 U	4.20 U
008880	RFETS	Graphite	115	312	5.00 U	9.40	1.10 U	1.40 U	1.40 U	1.40 U	1.40 U	1.20 U
009006	INEL	Solidified Inorganics	211	7	18.00 U	1.30	0.04 J	0.02 U	0.05 J	0.15 J	0.04 J	0.02 U
009011	RFETS	Solidified Inorganics	211	7	5.00 U	1.90	0.02 J	0.01 U	0.05 J	0.19	0.02 J	0.01 U
009061	RFETS	Inorganic Non-metal	218	440	5.00 U	0.41	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
009180	INEL	Combustible	223	339	17.00 U	5.30	0.69 U	0.76 U	0.81 U	1.00	0.83 U	1.00 U
009225	INEL	Uncategorized Metal	217	481	18.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
009252	INEL	Combustible	223	339	17.00 U	27.00 J	18.00 U	21.00 U	22.00 U	22.00 U	22.00 U	18.00 U
009296	INEL	Combustible	223	339	17.00 U	16.00	2.50 U	3.00 U	3.10 U	3.10 U	3.10 U	2.60 U
009299	INEL	Combustible	223	339	17.00 U	0.32 J	0.02 U	0.02 U	0.04 J	0.07 J	0.08 J	0.03 U
009399	INEL	Inorganic Non-metal	218	440	17.00 U	2.10	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
009422	RFETS	Combustible	216	337	5.00 U	8.50	4.70 U	5.50 U	5.90 U	5.90 U	5.90 U	4.90 U
009423	INEL	Combustible	216	337	17.00 U	3.60	1.30 U	1.60 U	1.50 U	1.90 U	1.80 U	1.90 U
009435	INEL	Combustible	216	337	17.00 U	6.40	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
009449	INEL	Inorganic Non-metal	218	440	17.00 U	15.00 E	0.04 U	0.04 U	0.05 U	0.10 J	0.05 U	0.04 U
009471	INEL	Combustible	216	337	18.00 U	0.85 J	0.07 U	0.08 U	0.08 U	0.09 U	0.08 U	0.15 U
009475	INEL	Inorganic Non-metal	218	442	17.00 U	0.65 U	0.51 U	0.64 U	0.60 U	0.74 U	0.70 U	0.75 U
009489	INEL	Combustible	216	337	1.10 U	0.94 J	0.18 U	0.20 U	0.21 U	0.24 U	0.22 U	0.40 U
009587	INEL	Uncategorized Metal	117	320	5.00 U	1.20	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
009591	INEL	Inorganic Non-metal	118	440	17.00 U	2.00	0.03 U	0.04 U	0.04 U	0.04 U	0.04 U	0.03 U
009592	INEL	Inorganic Non-metal	118	440	17.00 U	11.00	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
009596	INEL	Uncategorized Metal	117	320	17.00 U	8.80	0.11 U	0.14 U	0.14 U	0.14 U	0.14 U	0.12 U
009599	INEL	Inorganic Non-metal	118	440	17.00 U	1.30	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
009602	INEL	Inorganic Non-metal	218	442	17.00 U	2.40	1.70 U	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
009694	INEL	Graphite	215	300	17.00 U	0.04 J	0.01 U	0.02 U	0.02 U	0.03 J	0.02 J	0.02 U
009735	INEL	Graphite	215	300	17.00 U	0.04 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
009773	INEL	Combustible	223	339	17.00 U	7.00	3.80 U	4.80 U	4.50 U	5.60 U	5.30 U	5.60 U
009787	RFETS	Solidified Organics	212	3	5.00 U	220.00	160.00 U	180.00 U	190.00 U	190.00 U	190.00 U	160.00 U
009873	RFETS	Solidified Inorganics	211	1	5.00 U	3.00	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
010216	INEL	Filter	219	338	17.00 U	1.00 U	2.80	0.96 U	1.00 U	1.20 U	1.00 U	1.30 U
010224	INEL	Filter	219	338	17.00 U	1.20	1.20	0.29 U	0.31 U	0.35 U	0.32 U	0.38 U
010230	INEL	Heterogeneous	216	330	18.00 U	11.00	1.50	0.15 U	0.16 U	0.19 U	0.17 U	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
010273	INEL	Combustible	216	337	18.00 U	2.00	0.13 U	0.14 U	0.15 U	0.17 U	0.15 U	0.28 U
010295	INEL	Inorganic Non-metal	218	442	17.00 U	0.60 J	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U
010305	RFETS	Inorganic Non-metal	218	442	5.00 U	8.40	0.59 U	0.70 U	0.74 U	0.74 U	0.74 U	0.62 U
010364	RFETS	Combustible	216	337	5.00 U	4.20	0.75 U	0.88 U	0.94 U	0.94 U	0.94 U	0.79 U
010371	INEL	Combustible	216	337	17.00 U	22.00	0.35 U	0.33 U	0.35 U	0.44 U	0.37 U	0.29 U
010407	RFETS	Uncategorized Metal	217	480	5.00 U	25.00	0.10 U	0.12 U	0.39 J	0.89 J	0.43 J	0.11 U
010411	INEL	Combustible	216	337	15.00 U	18.00	1.70 U	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
010415	INEL	Inorganic Non-metal	218	442	17.00 U	0.20 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
010426	INEL	Inorganic Non-metal	218	442	17.00 U	0.11 JB	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
010463	INEL	Solidified Inorganics	213	4	34.00 U	2.20 J	0.25 U	0.30 U	0.31 U	0.31 U	0.31 U	0.26 U
010487	INEL	Salt Waste	224	414	17.00 U	5.70 J	0.46 U	0.54 U	0.57 U	0.57 U	0.57 U	0.48 U
010492	INEL	Uncategorized Metal	217	480	17.00 U	7.10	0.49 U	0.58 U	0.61 U	0.61 U	0.61 U	0.52 U
010498	INEL	Uncategorized Metal	217	480	17.00 U	4.60	0.03 U	0.04 U	0.04 U	0.05 U	0.04 U	0.05 U
010510	RFETS	Heterogeneous	216	336	5.00 U	12.00	1.60 J	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
010546	RFETS	Heterogeneous	216	330	10.00 U	57.00	39.00 U	46.00 U	49.00 U	49.00 U	49.00 U	41.00 U
010578	INEL	Solidified Organics	226	432	17.00 U	9.90 J	1.50 J	1.00 U	1.10 U	1.10 U	1.10 U	0.90 U
010588	RFETS	Solidified Inorganics	211	2	5.00 U	1.10	11.00	0.87 U	0.92 U	0.92 U	0.92 U	0.78 U
010663	INEL	Combustible	216	337	18.00 U	2.60	2.60	0.49 U	0.53 U	0.61 U	0.54 U	1.00 U
010676	INEL	Heterogeneous	216	330	17.00 U	7.20	1.90	0.40 U	0.42 U	0.48 U	0.43 U	0.80 U
010800	INEL	Filter	219	338	17.00 U	1.50	0.37 J	0.13 U	0.14 U	0.16 U	0.15 U	0.18 U
010807	INEL	Combustible	216	337	17.00 U	4.90	1.10 U	1.30 U	1.40 U	1.40 U	1.40 U	1.20 U
010808	INEL	Combustible	216	337	18.00 U	4.10	0.56 J	0.34 U	0.32 U	0.58 J	0.37 U	0.40 U
010814	RFETS	Solidified Inorganics	211	1	5.00 U	0.83	41.00	0.35 U	0.37 U	0.37 U	0.37 U	0.31 U
010837	INEL	Solidified Organics	226	432	17.00 U	1.70 J	0.80 J	0.44 U	0.47 U	0.47 U	0.47 U	0.40 U
010848	INEL	Filter	219	338	17.00 U	3.20	2.20	0.37 U	0.40 U	0.46 U	0.41 U	0.50 U

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
010883	INEL	Solidified Organics	226	432	17.00 U	7.20	8.60	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
010921	INEL	Inorganic Non-metal	222	371	18.00 U	0.12 U	0.13 J	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
011004	INEL	Uncategorized Metal	217	480	17.00 U	1.00	0.03 U	0.03 U	0.05 J	0.09 J	0.04 J	0.03 U
011021	INEL	Solidified Organics	226	432	17.00 U	23.00	0.15 U	0.18 U	0.19 U	0.19 U	0.19 U	0.16 U
011042	INEL	Inorganic Non-metal	218	442	17.00 U	2.90	0.53 U	0.62 U	0.66 U	0.66 U	0.66 U	0.55 U
011044	INEL	Inorganic Non-metal	218	440	17.00 U	3.50	0.30 U	0.36 U	0.38 U	0.38 U	0.38 U	0.32 U
011067	RFETS	Solidified Inorganics	213	4	5.00 U	2.20	0.99 U	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
011102	RFETS	Solidified Inorganics	211	1	5.00 U	1.10	0.24 U	0.28 U	0.30 U	0.30 U	0.30 U	0.25 U
011109	INEL	Solidified Inorganics	211	1	17.00 U	0.94 J	2.00	0.19 U	0.18 U	0.22 U	0.21 U	0.22 U
011147	INEL	Solidified Inorganics	213	4	17.00 U	3.20 B	0.17 U	0.22 U	0.21 U	0.26 U	0.24 U	0.26 U
011173	INEL	Uncategorized Metal	217	480	17.00 U	2.90	0.21 J	0.05 U	0.05 U	0.06 U	0.06 U	0.06 U
011194	INEL	Inorganic Non-metal	218	442	17.00 U	2.00	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
011393	INEL	Uncategorized Metal	217	480	17.00 U	4.90	0.13 U	0.15 U	0.16 U	0.18 J	0.16 U	0.13 U
011416	INEL	Combustible	216	337	17.00 U	0.80 U	0.55 U	0.65 U	0.69 U	0.69 U	0.69 U	0.58 U
011433	INEL	Heterogeneous	216	330	17.00 U	3.10	0.88 J	0.49 U	0.53 U	0.61 U	0.54 U	1.00 U
011498	RFETS	Solidified Organics	226	432	17.00 U	3.90	22.00	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
011529	INEL	Uncategorized Metal	217	480	17.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
011601	INEL	Heterogeneous	216	336	17.00 U	6.20	1.00 U	1.20 U	1.20 U	1.40 U	1.30 U	1.50 U
011607	INEL	Heterogeneous	216	330	17.00 U	0.65 J	0.06 J	0.03 U	3.40	8.00	1.60	0.04 U
011637	RFETS	Filter	219	338	5.00 U	2.70	1.90 JD	0.87 U	0.92 U	0.92 U	0.92 U	0.78 U
011735	INEL	Heterogeneous	216	330	17.00 U	4.60	1.00	0.89 U	0.94 U	0.94 U	0.94 U	0.79 U
011749	INEL	Inorganic Non-metal	225	441	17.00 U	0.31 U	12.00	0.25 U	0.27 U	0.27 U	0.27 U	0.22 U
011785	RFETS	Solidified Inorganics	211	1	5.00 U	4.40	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
012021	INEL	Solidified Inorganics	211	1	17.00 U	1.40 J	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
012108	INEL	Solidified Inorganics	214	292	17.00 U	4.10 J	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
012111	INEL	Combustible	216	337	17.00 U	2.50	1.40 U	1.60 U	2.10	5.10	1.70 U	3.20 U
012215	INEL	Uncategorized Metal	217	480	17.00 U	7.00	0.35 U	0.41 U	0.44 U	0.44 U	0.44 U	0.37 U
012313	INEL	Heterogeneous	216	336	17.00 U	2.10	0.68 J	0.59 U	0.63 U	0.73 U	0.65 U	1.20 U
012320	INEL	Heterogeneous	216	336	17.00 U	13.00	5.20	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
012356	INEL	Filter	219	338	17.00 U	2.40	1.30	0.22 U	0.21 U	0.26 U	0.25 U	0.26 U
012357	RFETS	Uncategorized Metal	217	480	7.10 J	4.00	34.00 J	3.10 U	3.30 U	3.30 U	3.30 U	2.80 U
012433	INEL	Filter	219	338	17.00 U	1.30	2.00	0.19 U	0.20 U	0.24 U	0.21 U	0.25 U
012469	RFETS	Solidified Inorganics	211	1	5.00 U	0.75	1.30 J	0.36 U	0.38 U	0.38 U	0.38 U	0.32 U
012471	RFETS	Filter	219	338	5.00 U	2.50	0.29 J	0.18 U	0.20 U	0.20 U	0.20 U	0.16 U
012487	INEL	Inorganic Non-metal	218	440	17.00 U	0.58 JB	1.70	0.02 U	0.03 J	0.10 JB	0.05 U	0.02 U
012494	INEL	Heterogeneous	216	330	17.00 U	6.50	2.30	1.20 U	2.20	5.50	1.30 U	1.10 U
012541	INEL	Inorganic Non-metal	218	442	17.00 U	2.70	0.03 U	0.03 U	0.03 U	0.06 J	0.04 J	0.03 U
012553	INEL	Solidified Inorganics	211	1	17.00 U	0.15 J	0.03 U	0.03 U	0.03 U	0.03 U	0.05 J	0.03 U
012571	INEL	Uncategorized Metal	217	320	1.10 U	0.03 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
012611	INEL	Solidified Inorganics	211	1	17.00 U	2.40 J	0.53 U	0.62 U	0.66 U	0.66 U	0.66 U	0.55 U
012634	INEL	Solidified Inorganics	211	1	17.00 U	2.60 J	1.40 U	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
012749	INEL	Solidified Inorganics	211	1	17.00 U	0.58 J	0.28 U	0.33 U	0.34 U	0.34 U	0.34 U	0.29 U
012766	INEL	Heterogeneous	216	336	17.00 U	4.80	2.50 U	3.00 U	3.10 U	3.10 U	3.10 U	2.60 U
012802	INEL	Combustible	216	337	17.00 U	15.00	3.40	1.20 U	1.10 U	1.40 U	1.30 U	1.40 U
012875	RFETS	Solidified Organics	226	432	17.00 U	6.90	3.40 U	4.00 U	4.20 U	4.20 U	4.20 U	3.60 U
012878	INEL	Uncategorized Metal	217	480	17.00 U	2.20	1.20	0.61 U	0.57 U	0.71 U	0.67 U	0.71 U
012891	INEL	Heterogeneous	216	330	17.00 U	4.70	0.29 U	0.34 U	0.36 U	1.40	0.46 J	0.30 U
012902	INEL	Filter	219	338	17.00 U	0.03 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
012920	INEL	Inorganic Non-metal	222	371	17.00 U	1.40 U	1.00 U	1.20 U	1.30 U	1.30 U	1.30 U	1.10 U
012985	INEL	Inorganic Non-metal	222	371	17.00 U	5.80 J	14.00 J	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
012986	INEL	Heterogeneous	221	302	1.10 U	22.00	2.60	0.53 U	0.50 U	0.61 U	0.58 U	0.62 U
012998	INEL	Combustible	216	337	17.00 U	3.90	10.00	0.68 U	0.72 U	0.72 U	0.72 U	0.61 U
013106	INEL	Solidified Inorganics	111	7	5.00 U	0.84	0.01 U	0.01 U	0.02 U	0.04 J	0.02 U	0.01 U
013229	RFETS	Solidified Organics	226	432	17.00 U	21.00	0.13 U	0.15 U	0.16 U	0.16 U	0.16 U	0.13 U
013231	INEL	Graphite	215	300	17.00 U	0.03 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
013252	INEL	Inorganic Non-metal	222	371	17.00 U	3.00	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
013266	INEL	Combustible	223	339	17.00 U	14.00	0.35 U	0.41 U	0.44 U	0.44 U	0.44 U	0.37 U
013269	INEL	Inorganic Non-metal	218	440	17.00 U	12.00	0.04 U	0.05 U	0.05 U	0.06 U	0.06 U	0.06 U
013313	INEL	Inorganic Non-metal	218	440	17.00 U	3.30	0.03 U	0.03 U	0.20 J	0.54 J	0.15 J	0.03 U
013331	INEL	Salt Waste	124	411	17.00 U	12.00	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
013342	INEL	Inorganic Non-metal	218	440	17.00 U	23.00 E	0.01 U	0.02 U	0.02 J	0.04 J	0.02 U	0.02 U
013346	RFETS	Inorganic Non-metal	222	371	5.00 U	3.70	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
013618	INEL	Heterogeneous	216	330	17.00 U	11.00	1.70 U	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
013677	INEL	Filter	219	338	17.00 U	0.41 J	0.17 J	0.05 U	0.05 U	0.06 U	0.05 U	0.06 U
013751	INEL	Uncategorized Metal	217	480	17.00 U	1.60	4.30	0.89 U	0.94 U	0.94 U	0.94 U	0.79 U
013763	INEL	Combustible	223	339	17.00 U	13.00 U	14.00 U	13.00 U	14.00 U	18.00 U	15.00 U	12.00 U
013773	RFETS	Solidified Inorganics	111	7	5.00 U	2.50	0.07 U	0.08 U	0.34 J	1.30	0.30 J	0.07 U
013818	RFETS	Solidified Inorganics	211	1	7.10 J	2.50	0.02 U	0.02 U	0.09 J	0.35	0.07 J	0.02 U
013820	RFETS	Solidified Inorganics	211	1	11.00 U	3.40	0.02 U	0.03 U	0.03 U	0.05 JB	0.03 U	0.02 U
013847	INEL	Graphite	215	300	17.00 U	0.06 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
013860	INEL	Combustible	223	339	17.00 U	1.50	0.06 U	0.06 U	0.07 U	0.08 U	0.07 U	0.09 U
013876	RFETS	Solidified Inorganics	211	7	5.00 U	0.84	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
014007	INEL	Solidified Inorganics	211	1	17.00 U	4.10	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U
014009	INEL	Solidified Inorganics	211	7	17.00 U	2.20	0.05 U	0.06 U	0.06 U	0.13 J	0.07 U	0.08 U
014010	INEL	Solidified Inorganics	211	7	17.00 U	0.64 J	0.01 U	0.02 U	0.03 J	0.09 J	0.02 J	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
014127	RFETS	Solidified Inorganics	211	7	5.00 U	1.50	0.02 U	0.02 U	0.04 J	0.14 J	0.02 J	0.02 U
014170	INEL	Solidified Inorganics	211	7	5.00 U	2.40	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
014330	INEL	Graphite	215	303	17.00 U	0.47 J	0.04 U	0.04 U	0.04 U	0.05 U	0.04 U	0.08 U
014334	INEL	Filter	219	335	17.00 U	0.10 J	0.06 U	0.05 U	0.06 U	0.07 U	0.06 U	0.05 U
014339	INEL	Solidified Organics	226	432	17.00 U	15.00 D	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U
014342	INEL	Graphite	215	303	17.00 U	0.12 J	0.06 U	0.06 U	0.07 U	0.08 U	0.07 U	0.13 U
014345	INEL	Solidified Organics	226	432	17.00 U	14.00	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
014346	INEL	Combustible	223	339	17.00 U	4.00	0.07 J	0.02 U	0.04 J	0.09 J	0.07 J	0.03 U
014348	INEL	Graphite	215	300	17.00 U	0.24 J	0.01 U	0.02 U	0.02 U	0.02 J	0.02 U	0.02 U
014354	RFETS	Uncategorized Metal	217	481	5.00 U	0.14	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
014357	INEL	Combustible	223	339	17.00 U	16.00	14.00 U	13.00 U	14.00 U	18.00 U	15.00 U	12.00 U
014387	INEL	Solidified Inorganics	211	7	17.00 U	4.60	0.01 U	0.02 U	0.11 J	0.33 J	0.06 J	0.02 U
014466	INEL	Heterogeneous	221	302	17.00 U	4.80	2.00 J	0.33 U	0.35 U	0.35 U	0.35 U	0.29 U
014484	INEL	Graphite	215	300	17.00 U	0.26 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
014502	RFETS	Solidified Inorganics	211	1	5.00 U	2.00	0.01 U	0.01 U	0.01 U	0.03 J	0.01 J	0.01 U
014504	RFETS	Solidified Inorganics	211	1	5.00 U	5.40	0.03 U	0.03 U	0.03 U	0.04 J	0.03 U	0.46 U
014773	INEL	Solidified Inorganics	214	292	5.00 U	11.00	0.04 U	0.05 U	0.06 U	0.06 U	0.06 U	0.05 U
015228	RFETS	Solidified Organics	226	432	17.00 U	4.20	0.15 U	0.18 U	0.19 U	0.26 J	0.19 U	0.16 U
015231	INEL	Inorganic Non-metal	218	440	17.00 U	2.10	0.03 U	0.03 U	0.03 J	0.05 J	0.03 U	0.03 U
015241	INEL	Inorganic Non-metal	218	442	17.00 U	0.33 J	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
015249	INEL	Graphite	215	300	17.00 U	0.04 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
015262	RFETS	Solidified Organics	226	432	17.00 U	12.00	1.40 U	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
015267	INEL	Uncategorized Metal	217	480	17.00 U	11.00	1.30 U	1.50 U	1.60 U	1.60 U	1.60 U	1.30 U
015338	INEL	Solidified Inorganics	211	7	17.00 U	3.50	0.09 J	0.02 U	0.08 J	0.29 J	0.03 J	0.03 U
015434	RFETS	Solidified Organics	226	432	17.00 U	13.00	0.04 U	0.04 U	0.05 U	0.08 J	0.05 U	0.04 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
015440	RFETS	Solidified Organics	226	432	17.00 U	7.60	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
015515	RFETS	Solidified Organics	212	3	5.00 U	34.00	24.00 U	28.00 U	30.00 U	30.00 U	30.00 U	25.00 U
015532	RFETS	Solidified Organics	212	3	5.00 U	100.00	73.00 U	86.00 U	91.00 U	91.00 U	91.00 U	77.00 U
015543	INEL	Solidified Organics	212	3	17.00 U	45.00 U	31.00 U	37.00 U	39.00 U	39.00 U	39.00 U	33.00 U
015627	INEL	Graphite	215	300	17.00 U	0.02 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
015655	INEL	Solidified Inorganics	211	7	17.00 U	0.17 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
015674	INEL	Graphite	215	300	17.00 U	0.52 J	0.04 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
015675	INEL	Uncategorized Metal	217	480	17.00 U	1.10	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.07 U
015777	RFETS	Solidified Organics	226	432	17.00 U	5.00	0.07 J	0.07 U	0.09 J	0.08 U	0.08 U	0.07 U
015785	RFETS	Solidified Inorganics	211	1	15.00 U	0.80	0.29 U	0.34 U	0.36 U	0.36 U	0.36 U	0.30 U
015786	INEL	Solidified Inorganics	211	1	17.00 U	1.20	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
016242	INEL	Graphite	215	300	17.00 U	0.02 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
016612	INEL	Inorganic Non-metal	218	442	17.00 U	0.11 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
016613	INEL	Solidified Organics	226	432	17.00 U	5.50	0.18 U	0.21 U	0.22 U	0.22 U	0.22 U	0.18 U
016707	INEL	Graphite	215	300	17.00 U	0.02 U	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
016738	RFETS	Solidified Inorganics	211	7	5.00 U	1.60	1.10 U	1.30 U	1.40 U	1.40 U	1.40 U	1.20 U
016790	INEL	Graphite	215	300	17.00 U	7.60	0.02 U	0.02 U	2.30	7.60	2.50	0.02 U
016807	INEL	Solidified Inorganics	211	1	17.00 U	0.93 J	0.11 U	0.14 U	0.14 U	0.30 J	0.16 J	0.17 U
016842	INEL	Graphite	215	300	17.00 U	0.03 J	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
016855	RFETS	Solidified Organics	212	3	5.00 U	160.00	110.00 U	130.00 U	140.00 U	140.00 U	140.00 U	120.00 U
016869	INEL	Solidified Inorganics	211	7	17.00 U	1.70	0.13 U	0.16 U	0.15 U	0.19 U	0.18 U	0.19 U
016964	RFETS	Solidified Inorganics	211	7	5.00 U	1.40	0.98 U	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
016986	INEL	Inorganic Non-metal	218	442	17.00 U	3.90	0.15 U	0.18 U	0.19 U	0.19 U	0.19 U	0.16 U
017148	INEL	Solidified Organics	226	432	17.00 U	9.60	0.54 U	0.63 U	0.67 U	0.67 U	0.67 U	0.56 U
017190	INEL	Solidified Inorganics	211	7	17.00 U	3.30 U	2.50 U	3.20 U	3.00 U	3.70 U	3.50 U	3.80 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
017444	INEL	Graphite	215	300	17.00 U	0.64 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
017453	INEL	Solidified Organics	212	3	5.00 U	47.00 U	32.00 U	38.00 U	41.00 U	41.00 U	41.00 U	34.00 U
017486	INEL	Solidified Inorganics	211	1	17.00 U	4.90	0.11 U	0.14 U	0.14 U	0.17 U	0.16 U	0.17 U
017491	INEL	Graphite	215	300	17.00 U	1.30	0.13 U	0.16 U	0.15 U	0.19 U	0.18 U	0.19 U
017495	INEL	Inorganic Non-metal	218	442	17.00 U	0.06 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
017496	INEL	Inorganic Non-metal	218	442	17.00 U	0.13 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
017698	RFETS	Solidified Inorganics	211	292	5.00 U	8.10	2.10 U	2.40 U	2.60 U	2.60 U	2.60 U	2.20 U
017709	INEL	Solidified Inorganics	211	1	17.00 U	0.30 J	0.05 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
017728	RFETS	Solidified Inorganics	211	1	5.00 U	0.86	0.59 U	0.70 U	0.74 U	0.74 U	0.74 U	0.62 U
017742	INEL	Inorganic Non-metal	218	440	17.00 U	4.30	0.50 U	0.59 U	0.63 U	0.63 U	0.63 U	0.53 U
017756	RFETS	Solidified Organics	226	432	17.00 U	9.10	1.40 U	1.70 U	1.80 U	1.80 U	1.80 U	1.50 U
017759	INEL	Solidified Organics	226	432	17.00 U	13.00 J	1.00 U	1.20 U	1.30 U	1.30 U	1.30 U	1.10 U
017788	INEL	Solidified Inorganics	211	7	17.00 U	1.40	0.84 U	1.10 U	1.00 U	1.20 U	1.20 U	1.20 U
017863	INEL	Filter	119	376	17.00 U	16.00	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
018111	RFETS	Solidified Inorganics	211	1	5.00 U	0.27	0.01 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U
018219	RFETS	Solidified Inorganics	211	7	5.00 U	1.40	0.98 U	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
018299	INEL	Filter	119	376	17.00 U	29.00	0.13 U	0.15 U	0.16 U	1.40 J	0.16 U	0.13 U
018413	INEL	Graphite	115	300	5.00 U	0.14	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
018441	INEL	Graphite	115	300	17.00 U	0.04 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
018464	INEL	Graphite	115	300	5.00 U	0.46	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
018476	INEL	Solidified Inorganics	111	292	5.00 U	24.00	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
018491	INEL	Graphite	115	300	17.00 U	0.06 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
019410	INEL	Lead/Cadmium Metal	123	339	5.00 U	5.40 JD	0.55 U	0.64 U	0.68 U	0.68 U	0.68 U	0.57 U
019413	INEL	Lead/Cadmium Metal	123	339	5.00 U	5.10 J	2.40 U	2.80 U	3.00 U	3.00 U	3.00 U	2.50 U
019572	INEL	Lead/Cadmium Metal	123	339	17.00 U	9.30	0.05 U	0.06 U	0.06 U	0.17 J	0.17 J	0.05 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
021031	RFETS	Solidified Inorganics	214	292	5.00 U	7.70	0.04 J	0.04 U	0.05 U	0.05 U	0.05 U	0.04 U
021172	RFETS	Inorganic Non-metal	218	442	5.00 U	0.08	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
021306	INEL	Solidified Inorganics	213	4	17.00 U	0.15 J	0.03 U	0.03 U	0.03 U	0.07 J	0.03 U	0.03 U
021392	RFETS	Solidified Inorganics	214	292	5.00 U	0.34	0.14 U	0.16 U	0.17 U	0.17 U	0.17 U	0.14 U
021442	INEL	Solidified Inorganics	211	1	17.00 U	0.75 J	0.36 U	0.45 U	0.42 U	0.52 U	0.49 U	0.53 U
021488	RFETS	Inorganic Non-metal	218	442	5.00 U	0.06	0.03 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
021503	RFETS	Inorganic Non-metal	218	440	5.00 U	1.50	0.14 U	0.16 U	0.18 U	0.18 U	0.18 U	0.15 U
021511	RFETS	Solidified Inorganics	213	4	5.00 U	0.17	0.04 U	0.04 U	0.05 U	0.05 J	0.05 U	0.04 U
021512	INEL	Solidified Inorganics	211	7	17.00 U	1.20 U	0.80 U	0.95 U	1.00 U	1.00 U	1.00 U	0.84 U
021523	INEL	Solidified Organics	226	432	17.00 U	8.80	0.70 J	0.60 U	0.96 J	2.10	0.82 J	0.54 U
021565	INEL	Solidified Inorganics	211	7	17.00 U	1.20	0.63 U	0.80 U	0.76 U	0.93 U	0.88 U	0.94 U
021572	INEL	Solidified Inorganics	211	7	17.00 U	0.70 J	0.33 U	0.42 U	0.39 U	0.48 U	0.46 U	0.49 U
021600	RFETS	Solidified Inorganics	211	1	5.00 U	1.00	0.24 J	0.28 U	0.30 U	0.30 U	0.30 U	0.25 U
021631	INEL	Inorganic Non-metal	218	442	17.00 U	1.50	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
021698	INEL	Inorganic Non-metal	218	440	17.00 U	10.00	0.94 U	1.10 U	1.20 U	1.20 U	1.20 U	0.99 U
021699	INEL	Solidified Inorganics	213	4	68.00 U	2.80	0.28 U	0.33 U	0.34 U	0.48 J	0.34 U	0.29 U
021700	RFETS	Solidified Inorganics	213	4	5.00 U	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
021806	INEL	Inorganic Non-metal	218	440	17.00 U	17.00 B	0.15 U	0.19 U	0.31 J	0.65 J	0.20 U	0.22 U
021816	INEL	Solidified Inorganics	211	1	17.00 U	2.30	0.08 U	0.10 U	0.10 J	0.31 J	0.10 U	0.11 U
021865	INEL	Solidified Inorganics	211	1	17.00 U	2.50 J	0.80 U	0.95 U	1.00 U	1.00 U	1.00 U	0.84 U
021993	INEL	Solidified Inorganics	211	2	17.00 U	0.75 J	0.46 J	0.44 U	0.47 U	0.47 U	0.47 U	0.40 U
022000	INEL	Inorganic Non-metal	218	440	17.00 U	10.00	0.08 U	0.10 U	0.18 J	0.23 J	0.10 U	0.09 U
022036	INEL	Uncategorized Metal	217	480	17.00 U	5.60	0.05 U	0.07 U	0.06 U	0.08 U	0.07 U	0.08 U
022038	RFETS	Uncategorized Metal	217	481	5.00 U	25.00	0.16 U	0.18 U	0.19 U	0.19 U	0.19 U	0.16 U
022052	INEL	Uncategorized Metal	217	481	17.00 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
022102	INEL	Solidified Organics	226	432	17.00 U	11.00	0.08 U	0.10 U	0.22 J	0.32 J	0.16 J	0.09 U
022105	INEL	Solidified Inorganics	211	1	17.00 U	1.70 J	0.34 U	0.41 U	0.44 U	0.44 U	0.44 U	0.37 U
022119	INEL	Inorganic Non-metal	222	371	17.00 U	0.65 U	0.45 U	0.53 U	0.56 U	0.56 U	0.56 U	0.47 U
022121	INEL	Solidified Inorganics	211	7	15.00 U	0.75 J	1.10	0.14 U	0.14 U	0.26 J	0.16 U	0.17 U
022135	INEL	Solidified Inorganics	211	7	17.00 U	3.00 J	1.80 J	0.68 U	0.72 U	0.72 U	0.72 U	0.61 U
022136	RFETS	Solidified Inorganics	211	7	16.00 J	6.00	0.74 U	0.87 U	1.30 J	2.50 J	0.92 U	0.78 U
022149	RFETS	Solidified Inorganics	211	7	5.00 U	2.20	0.18 U	0.22 U	0.58 J	0.72 J	0.26 J	0.19 U
022224	INEL	Solidified Inorganics	211	1	17.00 U	0.70 J	200.00 E	0.41 U	0.44 U	0.44 U	0.44 U	0.37 U
022226	RFETS	Inorganic Non-metal	222	371	5.00 U	1.40	0.98 U	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
022228	INEL	Inorganic Non-metal	222	371	18.00 U	0.68 J	0.13 U	0.15 U	0.16 U	0.23 J	0.18 J	0.13 U
022230	INEL	Inorganic Non-metal	222	371	17.00 U	0.26 J	0.10 U	0.12 U	0.13 U	0.13 U	0.13 U	0.11 U
022249	INEL	Uncategorized Metal	217	480	17.00 U	6.30	1.30 U	1.60 U	1.50 U	1.90 U	1.80 U	1.90 U
022275	INEL	Uncategorized Metal	217	480	17.00 U	15.00	0.29 U	0.36 U	0.34 U	0.42 U	0.40 U	0.42 U
022286	RFETS	Uncategorized Metal	217	480	5.00 U	19.00	0.42 U	0.50 U	2.30 J	7.60	1.30 J	0.44 U
022296	INEL	Solidified Inorganics	211	1	17.00 U	2.90	0.63 U	0.80 U	0.75 U	0.93 U	0.88 U	0.94 U
022306	INEL	Inorganic Non-metal	218	440	15.00 U	14.00	0.75 U	0.89 U	0.94 U	0.94 U	0.94 U	0.79 U
022338	INEL	Solidified Organics	212	3	17.00 U	140.00 U	120.00 J	120.00 U	130.00 U	130.00 U	130.00 U	110.00 U
022347	INEL	Inorganic Non-metal	218	440	17.00 U	5.70 B	0.20 U	0.25 U	0.23 U	0.29 U	0.27 U	0.29 U
022358	INEL	Uncategorized Metal	217	480	17.00 U	11.00 E	0.02 J	0.02 U	0.25 J	0.06 J	0.03 J	0.02 U
022416	RFETS	Uncategorized Metal	217	320	5.00 U	1.10	0.04 U	0.05 U	0.06 U	0.06 J	0.06 U	0.05 U
022434	INEL	Solidified Organics	226	432	17.00 U	19.00	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
022442	INEL	Solidified Organics	226	432	17.00 U	27.50	0.98 U	1.14 U	1.21 U	1.21 U	1.21 U	1.00 U
022450	RFETS	Uncategorized Metal	217	320	5.00 U	1.20	0.07 U	0.09 U	0.09 U	0.09 U	0.09 U	0.08 U
022453	RFETS	Solidified Inorganics	211	2	5.00 U	1.20	0.07 U	0.08 U	0.10 J	0.34 J	0.19 J	0.07 U
022486	RFETS	Inorganic Non-metal	218	440	6.00 J	13.00	1.50 U	1.80 U	1.90 U	1.90 U	1.90 U	1.60 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
022511	INEL	Uncategorized Metal	217	480	18.00 U	2.70	0.78 U	0.92 U	0.97 U	0.97 U	0.97 U	0.82 U
022513	INEL	Solidified Organics	212	1	17.00 U	0.81 J	0.23 U	0.27 U	0.28 U	0.28 U	0.28 U	0.24 U
022517	INEL	Solidified Organics	226	432	17.00 U	16.00	0.10 U	0.11 U	0.12 U	0.12 U	0.12 U	0.10 U
022539	INEL	Solidified Organics	226	432	17.00 U	15.00	0.10 U	0.11 U	0.12 U	0.12 U	0.12 U	0.10 U
022549	INEL	Uncategorized Metal	217	480	18.00 U	3.30	1.30 U	1.50 U	1.60 U	1.60 U	1.60 U	1.30 U
022552	INEL	Inorganic Non-metal	218	442	17.00 U	0.61 J	0.29 U	0.34 U	0.36 U	0.36 U	0.36 U	0.30 U
022557	INEL	Uncategorized Metal	217	480	17.00 U	17.00	0.45 U	0.56 U	0.53 U	0.66 U	0.62 U	0.66 U
022595	INEL	Solidified Inorganics	211	1	15.00 U	1.10	0.22 U	0.27 U	0.26 U	0.32 U	0.30 U	0.32 U
022600	RFETS	Solidified Inorganics	213	4	130.00 U	2.10	0.23 U	0.27 U	0.29 U	0.29 U	0.29 U	0.24 U
022780	INEL	Solidified Inorganics	211	7	18.00 U	2.80	1.10	0.40 U	0.38 U	0.46 U	0.44 U	0.47 U
022789	INEL	Solidified Inorganics	211	7	17.00 U	0.80 U	0.70 J	0.66 U	0.70 U	0.70 U	0.70 U	0.58 U
022790	INEL	Solidified Inorganics	214	292	18.00 U	5.00 B	0.15 U	0.19 U	0.18 U	0.27 JB	0.21 U	0.23 U
022803	INEL	Inorganic Non-metal	222	371	15.00 U	0.76 U	0.53 U	0.62 U	0.66 U	0.66 U	0.66 U	0.55 U
022807	INEL	Salt Waste	224	414	17.00 U	4.00	0.10 U	0.12 U	0.15 J	0.30 J	0.13 U	0.11 U
022811	INEL	Solidified Inorganics	211	7	17.00 U	1.80	1.30	0.34 U	0.32 U	0.39 U	0.37 U	0.39 U
022833	INEL	Solidified Inorganics	211	7	15.00 U	3.90	1.90 U	2.40 U	2.30 U	2.80 U	2.60 U	2.80 U
022841	INEL	Solidified Inorganics	211	7	17.00 U	3.10	1.00 U	1.30 U	1.20 U	1.50 U	1.40 U	1.50 U
022850	INEL	Solidified Inorganics	211	7	17.00 U	2.70	1.70	0.80 U	0.75 U	0.93 U	0.88 U	0.94 U
022874	INEL	Inorganic Non-metal	222	371	17.00 U	0.88 J	0.18 U	0.21 U	0.22 U	0.22 U	0.22 U	0.19 U
022894	INEL	Solidified Inorganics	211	1	15.00 U	1.20	0.16 J	0.11 U	0.89 J	1.80	0.78 J	0.13 U
022923	INEL	Inorganic Non-metal	218	440	17.00 U	6.90	0.33 U	0.38 U	0.41 U	0.41 U	0.41 U	0.34 U
023005	INEL	Solidified Inorganics	211	7	17.00 U	1.70 J	1.30 J	0.18 U	0.30 J	0.55 J	0.19 U	0.16 U
023027	RFETS	Uncategorized Metal	217	480	5.00 U	0.46	0.43 J	0.18 U	0.18 U	0.47 J	0.36 J	0.16 U
023041	RFETS	Inorganic Non-metal	222	371	5.00 U	0.42	0.24 U	0.28 U	0.30 U	0.30 U	0.30 U	0.25 U
023046	RFETS	Solidified Inorganics	211	7	5.00 U	2.50	0.66 J	0.50 U	0.53 U	0.53 U	0.53 U	0.44 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
023048	RFETS	Solidified Organics	226	432	17.00 U	22.00	0.35 U	0.41 U	0.44 U	0.44 U	0.44 U	0.37 U
023062	INEL	Solidified Inorganics	211	7	17.00 U	1.20 J	0.58 J	0.18 U	0.19 U	0.19 U	0.19 U	0.16 U
023211	INEL	Filter	119	376	17.00 U	9.30	0.05 U	0.06 U	0.06 U	0.17 J	0.08 J	0.05 U
023212	RFETS	Uncategorized Metal	217	480	5.00 U	7.40	0.49 U	0.58 U	0.62 U	0.62 U	0.62 U	0.52 U
023227	INEL	Uncategorized Metal	217	480	17.00 U	2.50	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
023229	INEL	Combustible	216	337	17.00 U	4.00 J	0.50 U	0.59 U	0.63 U	0.63 U	0.63 U	0.53 U
023235	RFETS	Heterogeneous	216	336	5.00 U	16.00	0.13 U	0.16 U	0.32 J	0.65 J	0.17 U	0.14 U
023238	INEL	Solidified Inorganics	211	1	17.00 U	1.70	0.17 J	0.18 U	0.17 U	0.20 U	0.19 U	0.21 U
023277	INEL	Inorganic Non-metal	222	371	17.00 U	1.30 U	0.88 U	1.00 U	1.10 U	1.10 U	1.10 U	0.92 U
023285	INEL	Solidified Inorganics	211	7	17.00 U	3.30 J	1.70 U	2.00 U	2.10 U	2.10 U	2.10 U	1.80 U
023312	INEL	Uncategorized Metal	217	480	17.00 U	4.10	0.63 U	0.80 U	0.76 U	0.93 U	0.88 U	0.94 U
023341	RFETS	Solidified Inorganics	211	7	5.00 U	0.83	0.49	0.01 U	0.14	0.26	0.10	0.01 U
023357	INEL	Solidified Inorganics	211	1	17.00 U	1.70 J	0.13 U	0.15 U	0.16 U	0.16 U	0.16 U	0.13 U
023383	RFETS	Uncategorized Metal	217	481	5.00 U	0.16	0.01 U	0.01 U	0.01 U	0.03 J	0.01 U	0.01 U
023384	INEL	Combustible	223	339	15.00 U	0.18 J	0.09 U	0.10 U	0.11 U	0.17 J	0.22 J	0.13 U
023388	INEL	Heterogeneous	216	330	15.00 U	0.49 J	0.08 U	0.09 U	0.09 U	0.11 U	0.10 U	0.17 U
023392	INEL	Solidified Inorganics	213	4	43.00 U	0.95 J	0.56 U	0.67 U	0.71 U	0.71 U	0.71 U	0.59 U
023407	INEL	Solidified Organics	212	3	17.00 U	28.00 U	20.00 U	23.00 U	24.00 U	24.00 U	24.00 U	21.00 U
023460	INEL	Inorganic Non-metal	218	442	17.00 U	1.20	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
023469	INEL	Solidified Organics	212	3	17.00 U	0.43 U	0.30 U	0.36 U	0.38 U	0.88 J	0.58 J	0.32 U
023492	INEL	Solidified Inorganics	211	7	17.00 U	0.90 U	0.63 U	0.74 U	0.78 U	0.78 U	0.78 U	0.66 U
023519	INEL	Solidified Organics	212	3	17.00 U	3.10 U	2.40 U	3.00 U	2.90 U	3.50 U	3.30 U	3.60 U
023535	INEL	Solidified Inorganics	211	7	15.00 U	0.82 U	0.63 U	0.80 U	0.75 U	0.93 U	0.88 U	0.94 U
023552	INEL	Solidified Inorganics	211	1	17.00 U	1.90 J	0.70 U	0.83 U	0.88 U	0.88 U	0.88 U	0.74 U
023662	INEL	Inorganic Non-metal	218	442	1.10 U	1.40	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
023681	INEL	Solidified Inorganics	211	1	17.00 U	0.70 J	0.30 U	0.36 U	0.38 U	0.38 U	0.38 U	0.32 U
023695	RFETS	Solidified Inorganics	211	2	5.00 U	0.62	0.22 J	0.18 U	0.19 U	0.23 J	0.19 U	0.16 U
023771	RFETS	Heterogeneous	216	330	5.00 U	23.00	0.16 U	0.19 U	0.20 U	0.20 U	0.20 U	0.17 U
023776	INEL	Heterogeneous	216	330	17.00 U	6.50	0.33 U	0.39 U	0.42 U	0.42 U	0.42 U	0.35 U
023805	INEL	Uncategorized Metal	217	480	17.00 U	5.20	0.01 U	0.02 U	0.07 J	0.10 J	0.07 J	0.02 U
023827	RFETS	Uncategorized Metal	217	320	5.00 U	0.16	0.01 U	0.01 U	0.01 J	0.02 J	0.01 U	0.01 U
023840	INEL	Combustible	216	337	17.00 U	3.00	0.29 U	0.32 U	0.34 U	0.39 U	0.35 U	0.64 U
023901	INEL	Heterogeneous	216	330	1.10 U	1.20	0.27 U	0.30 U	0.32 U	0.37 U	0.33 U	0.61 U
023929	RFETS	Inorganic Non-metal	218	440	5.00 U	2.30	0.50 U	0.59 U	0.63 U	0.63 U	0.63 U	5.00 U
023959	INEL	Uncategorized Metal	217	480	17.00 U	22.00	1.10 U	1.30 U	1.40 U	1.40 U	1.40 U	1.20 U
024028	RFETS	Inorganic Non-metal	218	440	5.00 U	0.50	0.10 U	0.12 U	0.13 U	0.13 U	0.13 U	0.11 U
024029	INEL	Uncategorized Metal	217	480	17.00 U	0.13 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
024058	INEL	Solidified Inorganics	211	1	17.00 U	2.20 J	0.38 U	0.44 U	0.47 U	0.47 U	0.47 U	0.40 U
024059	INEL	Solidified Inorganics	214	292	17.00 U	10.00	0.15 U	0.18 U	0.29 J	0.47 J	0.28 J	0.16 U
024088	INEL	Combustible	216	337	1.10 U	11.00	0.29 U	0.34 U	7.40	20.00	3.60	0.30 U
024090	INEL	Combustible	216	337	17.00 U	8.00	0.43 U	0.47 U	0.51 U	0.58 U	0.52 U	0.96 U
024092	INEL	Combustible	216	337	17.00 U	15.00	1.30 U	1.50 U	1.60 U	1.60 U	1.60 U	1.30 U
024095	INEL	Combustible	216	337	17.00 U	2.30	0.18 U	0.20 U	0.21 U	0.24 U	0.22 U	0.40 U
024102	INEL	Combustible	216	337	17.00 U	14.00	0.43 U	0.50 U	0.54 U	0.54 U	0.54 U	0.45 U
024106	INEL	Combustible	216	337	17.00 U	22.00	0.63 U	0.74 U	0.78 U	0.78 U	0.78 U	0.66 U
024113	INEL	Combustible	216	337	17.00 U	12.00	0.19 U	0.22 U	0.24 U	0.24 U	0.24 U	0.20 U
024147	INEL	Solidified Inorganics	211	1	17.00 U	3.60 J	0.58 U	0.68 U	0.72 U	0.72 U	0.72 U	0.61 U
024165	INEL	Combustible	216	337	17.00 U	12.00	0.44 U	0.52 U	9.80	28.00	3.40	0.46 U
024168	INEL	Heterogeneous	216	330	17.00 U	0.56 J	0.03 U	0.03 U	0.03 U	0.05 J	0.03 U	0.26 U
024185	INEL	Salt Waste	224	409	17.00 U	1.90	0.03 U	0.03 U	0.14 J	0.23 J	0.14 J	0.03 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
024254	INEL	Salt Waste	224	414	17.00 U	6.30	0.04 U	0.05 U	0.09 J	0.33 J	0.23 J	0.04 U
024271	INEL	Inorganic Non-metal	218	442	17.00 U	3.90	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
024273	INEL	Inorganic Non-metal	218	442	17.00 U	4.90	0.16 U	0.19 U	0.20 U	0.20 U	0.20 U	0.17 U
024289	RFETS	Inorganic Non-metal	218	440	5.00 U	13.00	0.30 U	0.35 U	0.37 U	0.37 U	0.37 U	0.31 U
024295	INEL	Salt Waste	224	414	17.00 U	2.40	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
024308	INEL	Solidified Inorganics	211	2	17.00 U	1.40 J	0.13 U	0.15 U	0.20 J	0.64 J	0.39 J	0.13 U
024309	INEL	Solidified Inorganics	211	2	17.00 U	1.20 J	0.10 U	0.12 U	0.19 J	0.66 J	0.37 J	0.11 U
024311	INEL	Solidified Inorganics	211	2	41.00 U	0.89 J	0.20 U	0.24 U	0.26 U	0.50 J	0.30 J	0.21 U
024318	INEL	Solidified Inorganics	211	2	17.00 U	0.39 J	0.20 U	0.24 U	0.25 U	0.46 J	0.25 U	0.21 U
024506	INEL	Inorganic Non-metal	122	374	17.00 U	6.80	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U
024507	INEL	Uncategorized Metal	117	480	17.00 U	14.00	0.06 U	0.07 U	0.08 U	0.19 J	0.09 J	0.07 U
024600	INEL	Uncategorized Metal	217	480	17.00 U	9.30	0.23 U	0.27 U	0.43 J	0.80 J	0.42 J	0.24 U
024638	INEL	Heterogeneous	216	330	17.00 U	1.40	0.11 U	0.13 U	0.14 U	0.14 U	0.14 U	0.12 U
024670	INEL	Solidified Inorganics	211	1	17.00 U	3.80 J	0.45 U	0.53 U	0.56 U	0.56 U	0.56 U	0.48 U
024765	INEL	Uncategorized Metal	217	480	17.00 U	1.90	0.04 U	0.05 U	0.05 J	0.06 U	0.05 U	0.06 U
024786	INEL	Uncategorized Metal	217	480	17.00 U	5.00	0.30 U	0.36 U	0.38 U	0.38 U	0.38 U	0.32 U
024850	INEL	Solidified Organics	226	432	17.00 U	18.00	0.08 U	0.10 U	0.10 U	0.10 U	0.10 U	0.09 U
024884	INEL	Uncategorized Metal	217	480	17.00 U	22.00	0.20 U	0.24 U	0.25 U	0.25 U	0.25 U	0.21 U
024897	INEL	Solidified Inorganics	211	1	17.00 U	1.00 J	0.20 U	0.24 U	0.25 U	0.25 U	0.25 U	0.21 U
024920	INEL	Solidified Inorganics	211	1	17.00 U	5.30 J	0.58 U	0.68 U	0.72 U	0.72 U	0.72 U	0.61 U
024991	INEL	Solidified Inorganics	211	1	17.00 U	3.90	0.28 U	0.33 U	0.35 U	0.35 U	0.35 U	0.29 U
025001	INEL	Solidified Organics	212	3	17.00 U	2.40 J	1.00 U	1.20 U	1.30 U	1.30 U	1.30 U	1.10 U
032284	INEL	Combustible	223	339	17.00 U	3.70	0.29 U	0.32 U	0.37 J	0.98 J	0.86 J	0.42 U
032287	RFETS	Solidified Inorganics	211	7	5.00 U	1.40	0.99 U	1.20 U	1.20 U	1.20 U	1.20 U	1.00 U
032467	INEL	Combustible	216	337	17.00 U	0.29 J	0.20 U	0.24 U	0.25 U	0.25 U	0.25 U	0.21 U

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
032469	RFETS	Combustible	216	337	5.00 U	6.80	0.33 U	0.39 U	0.41 U	0.41 U	0.41 U	0.34 U
032473	INEL	Combustible	216	337	17.00 U	9.80	1.30 U	1.60 U	1.70 U	1.70 U	1.70 U	1.40 U
032485	INEL	Combustible	216	337	17.00 U	8.60	0.78 U	0.92 U	0.98 U	0.98 U	0.98 U	0.82 U
032517	RFETS	Combustible	223	339	5.00 U	2.60	0.07 U	0.09 U	0.20 J	0.41 JB	0.46 J	0.08 U
032521	INEL	Combustible	223	339	17.00 U	3.10	0.06 U	0.07 U	0.31 J	0.55 J	0.76 J	0.09 U
032525	INEL	Combustible	223	339	17.00 U	2.00	0.04 U	0.04 U	0.11 J	0.16 J	0.23 J	0.05 U
032526	INEL	Combustible	223	339	17.00 U	2.40	0.54 U	0.59 U	0.63 U	1.30	0.83 J	0.78 U
032529	INEL	Heterogeneous	216	336	17.00 U	26.00	0.23 U	0.33 U	0.38 U	0.32 U	0.25 U	0.15 U
032540	INEL	Uncategorized Metal	217	480	17.00 U	0.94 J	0.33 U	0.39 U	0.41 U	0.41 U	0.41 U	0.34 U
032632	INEL	Uncategorized Metal	217	480	17.00 U	1.70	0.14 U	0.15 U	0.16 U	0.19 U	0.17 U	0.20 U
032659	RFETS	Uncategorized Metal	217	480	5.00 U	4.30	0.26 U	0.30 U	0.32 U	0.34 J	0.32 U	0.27 U
032669	RFETS	Uncategorized Metal	217	480	5.00 U	3.40	0.28 U	0.33 U	0.35 U	0.35 U	0.35 U	0.30 U
032712	INEL	Uncategorized Metal	217	480	17.00 U	0.82 J	0.24 U	0.28 U	0.30 U	0.30 U	0.30 U	0.25 U
032715	RFETS	Combustible	216	337	5.00 U	0.86	0.07 U	0.09 U	0.09 U	0.09 U	0.09 U	0.08 U
032748	INEL	Combustible	223	339	17.00 U	4.40	0.23 U	0.33 U	0.38 U	0.32 U	0.25 U	0.15 U
032753	INEL	Uncategorized Metal	217	481	17.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
033091	INEL	Combustible	223	339	17.00 U	2.70	0.02 U	0.02 U	0.38 J	1.10	0.86 J	0.03 U
D01332	RFETS	Heterogeneous	116	832	3.00 U	19.36	0.50 U	1.00 U	42.90	133.38	62.59	0.50 U
D06288	RFETS	Filter	119	338	0.60 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D06339	RFETS	Heterogeneous	0	337	4.72 J	1.27 J	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D11129	RFETS	Filter	119	338	0.79 J	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D13364	RFETS	Uncategorized Metal	117	480	1.10 U	2.48	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D15680	RFETS	Heterogeneous	116	831	400.00 U	66.67 U	66.67 U	133.33 U	66.67 U	66.67 U	66.67 U	66.67 U
D17184	RFETS	Solidified Inorganics	111	800	1.10 U	1.61	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D32439	RFETS	Filter	119	338	0.60 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D32978	RFETS	Solidified Inorganics	111	803	34.00 U	5.67 U	5.67 U	11.33 U	5.67 U	5.67 U	5.67 U	5.67 U
D35301	RFETS	Solidified Inorganics	111	800	1.10 U	0.20 J	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D35306	RFETS	Lead/Cadmium Metal	123	339	1.20 U	7.86	0.20 U	0.40 U	0.20 U	0.45 J	1.03 J	0.20 U
D36606	RFETS	Uncategorized Metal	117	480	2.80 U	40.46	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D38859	RFETS	Solidified Inorganics	111	803	1.10 U	0.45 J	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D38989	RFETS	Heterogeneous	0	336	0.60 U	9.27	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D41681	RFETS	Filter	119	338	0.10 U	3.39	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D42280	RFETS	Solidified Organics	112	801	2500.00 U	416.67 U	416.67 U	833.33 U	416.67 U	416.67 U	416.67 U	416.67 U
D47501	RFETS	Lead/Cadmium Metal	0	341	0.68 J	5.91	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D48182	RFETS	Filter	119	376	4.40 U	27.92	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D48200	RFETS	Heterogeneous	116	831	88.00 U	16.39 J	8.00 U	8.00 U	8.00 U	8.00 U	16.00 U	8.00 U
D48377	RFETS	Inorganic Non-metal	118	368	1.10 U	2.61	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D49662	RFETS	Solidified Inorganics	0	292	0.60 U	6.19	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D49880	RFETS	Heterogeneous	0	336	1.60 U	16.66	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D52318	RFETS	Lead/Cadmium Metal	117	321	0.60 U	0.22 J	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D52362	RFETS	Heterogeneous	116	821	2.20 U	9.50	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D52726	RFETS	Heterogeneous	116	833	4.80 U	11.72	0.80 U	1.60 U	0.80 U	0.80 U	0.80 U	0.80 U
D53672	RFETS	Inorganic Non-metal	118	440	2.20 U	8.14	0.20 U	0.20 U	0.20 U	0.29 J	0.40 U	0.20 U
D55656	RFETS	Heterogeneous	116	831	3.30 U	33.36	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D55680	RFETS	Heterogeneous	116	821	2.20 U	8.57	0.20 U	0.20 U	0.20 U	0.23 J	0.40 U	0.20 U
D55938	RFETS	Heterogeneous	116	831	2.20 U	12.11	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D56095	RFETS	Heterogeneous	0	337	0.60 U	3.59	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D56595	RFETS	Heterogeneous	116	831	80.00 U	13.33 U	13.33 U	26.67 U	13.33 U	13.33 U	13.33 U	13.33 U
D56755	RFETS	Heterogeneous	116	821	1.10 U	0.20 J	0.10 U	0.10 U	0.10 U	0.18 J	0.20 U	0.10 U
D56823	RFETS	Heterogeneous	116	831	4.40 U	23.57	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U

Table [illegible]-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D57179	RFETS	Heterogeneous	0	330	12.00 U	6.90 J	2.00 U	4.00 U	2.00 U	2.00 U	2.00 U	2.00 U
D57522	RFETS	Heterogeneous	0	336	2.40 U	7.15	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D57847	RFETS	Uncategorized Metal	117	480	2.80 U	41.16	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D58143	RFETS	Solidified Inorganics	111	807	1.10 U	8.03	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D58154	RFETS	Heterogeneous	116	831	2.40 U	40.69	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D58627	RFETS	Heterogeneous	116	831	1.20 U	11.64	0.20 U	0.40 U	10.02	36.00	10.31	0.20 U
D58889	RFETS	Heterogeneous	116	831	1.40 U	12.97	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D58970	RFETS	Solidified Inorganics	111	807	1.10 U	3.12	0.10 U	0.10 U	0.10 U	0.17 J	0.20 U	0.10 U
D59053	RFETS	Lead/Cadmium Metal	0	341	0.60 U	3.49	0.10 U	0.20 U	0.15 J	0.32 J	0.78 J	0.10 U
D59703	RFETS	Heterogeneous	116	831	3.50 U	62.59	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D59899	RFETS	Filter	0	331	3.50 U	50.44 a	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D60056	RFETS	Lead/Cadmium Metal	0	341	1.60 U	5.44	0.27 U	0.53 U	0.27 U	0.63 J	1.53 J	0.27 U
D60218	RFETS	Heterogeneous	116	821	2.20 U	5.17	0.20 U	0.20 U	1.75 J	11.25	8.61	0.20 U
D60298	RFETS	Solidified Organics	112	801	6306.66 U	573.33 U	573.33 U	573.33 U	573.33 U	573.33 U	1146.6 U	573.33 U
D60320	RFETS	Heterogeneous	0	330	256.93 J	28.00 U	28.00 U	56.00 U	28.00 U	28.00 U	28.00 U	28.00 U
D60463	RFETS	Inorganic Non-metal	118	440	1.10 U	1.92	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D60511	RFETS	Filter	119	491	2.20 U	8.05	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D60635	RFETS	Filter	119	491	1.10 U	4.79	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D61245	RFETS	Heterogeneous	0	336	5.48 J	12.27	0.47 U	0.93 U	0.47 U	0.47 U	0.47 U	0.47 U
D61278	RFETS	Heterogeneous	0	336	1.60 U	18.50	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D61473	RFETS	Heterogeneous	0	377	3.30 U	26.06	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D61504	RFETS	Lead/Cadmium Metal	0	341	3.47 J	6.80	0.10 U	0.34 J	0.31 J	0.82 J	1.58	0.10 U
D61747	RFETS	Heterogeneous	0	330	3.33 J	23.52	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D62340	RFETS	Heterogeneous	116	821	4.40 U	29.08	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D62478	RFETS	Filter	119	376	4.40 U	28.29	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D62714	RFETS	Heterogeneous	116	831	7.00 U	29.92	1.00 U	2.00 U	1.00 U	1.00 U	1.00 U	1.00 U
D62851	RFETS	Heterogeneous	116	825	3.30 U	6.69	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D62855	RFETS	Heterogeneous	116	821	66.00 U	26.39 J	6.00 U	6.00 U	6.00 U	6.00 U	12.00 U	6.00 U
D63098	RFETS	Filter	0	331	4.59 J	48.86 a	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D63229	RFETS	Heterogeneous	116	831	2.20 U	22.72	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D63281	RFETS	Solidified Inorganics	111	807	1.10 U	5.39	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D63460	RFETS	Heterogeneous	116	831	1.10 U	14.84	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D63654	RFETS	Solidified Inorganics	111	807	1.10 U	5.82	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D63808	RFETS	Heterogeneous	116	831	8.80 U	44.69	0.80 U	0.80 U	0.80 U	0.80 U	1.60 U	0.80 U
D63817	RFETS	Heterogeneous	116	821	17.60 U	8.12 J	1.60 U	1.60 U	1.60 U	1.60 U	3.20 U	1.60 U
D63819	RFETS	Solidified Inorganics	111	807	2.20 U	2.57	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D63999	RFETS	Filter	119	491	3.30 U	11.61	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D64004	RFETS	Filter	0	331	2.80 U	36.31 a	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D64137	RFETS	Filter	119	335	1.10 U	0.14 J	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D64448	RFETS	Heterogeneous	116	821	1210.00 U	574.53 J	110.00 U	110.00 U	1996.8	8500.1	2764.0	110.00 U
D64555	RFETS	Solidified Organics	112	801	6306.66 U	573.33 U	573.33 U	573.33 U	573.33 U	573.33 U	1146.6 U	573.33 U
D64632	RFETS	Solidified Inorganics	111	800	1.10 U	2.64	0.10 U	0.10 U	0.10 U	0.25 J	0.20 U	0.10 U
D64752	RFETS	Uncategorized Metal	117	480	14.00 U	28.39	2.00 U	4.00 U	2.00 U	2.00 U	2.00 U	2.00 U
D64758	RFETS	Heterogeneous	116	831	3.00 U	46.17	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D64860	RFETS	Heterogeneous	116	831	84.00 U	24.89 J	12.00 U	24.00 U	12.00 U	12.00 U	12.00 U	12.00 U
D65212	RFETS	Heterogeneous	116	831	63.00 U	19.34 J	9.00 U	18.00 U	9.00 U	9.00 U	9.00 U	9.00 U
D65213	RFETS	Heterogeneous	116	831	56.00 U	27.39 J	8.00 U	16.00 U	8.00 U	8.00 U	8.00 U	8.00 U
D65214	RFETS	Heterogeneous	116	831	810.34 U	73.67 U	73.67 U	73.67 U	73.67 U	73.67 U	147.33 U	73.67 U
D65530	RFETS	Solidified Inorganics	111	807	1.10 U	5.64	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D65535	RFETS	Solidified Inorganics	111	807	1.10 U	1.84	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U

Table [illegible]-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D65546	RFETS	Solidified Inorganics	111	807	1.10 U	5.54	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D65600	RFETS	Solidified Inorganics	111	807	1.10 U	4.21	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D65731	RFETS	Inorganic Non-metal	122	375	4.40 U	7.18	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D65734	RFETS	Uncategorized Metal	117	480	7.70 U	56.70	0.70 U	0.70 U	0.70 U	0.84 J	1.40 U	0.70 U
D65754	RFETS	Heterogeneous	116	831	4.00 U	68.61	0.67 U	1.33 U	0.67 U	0.67 U	0.67 U	0.67 U
D65757	RFETS	Heterogeneous	116	831	18.00 U	11.25 J	3.00 U	6.00 U	3.00 U	3.00 U	3.00 U	3.00 U
D65972	RFETS	Filter	119	376	3.30 U	19.73	0.30 U	0.30 U	0.30 U	0.39 J	0.60 U	0.30 U
D66128	RFETS	Heterogeneous	116	831	3.00 U	39.06	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D66157	RFETS	Uncategorized Metal	117	480	725.65 J	106.82	2.00 U	4.00 U	132.20	407.06	59.58	2.00 U
D66162	RFETS	Lead/Cadmium Metal	123	339	990.00 U	90.00 U	90.00 U	90.00 U	90.00 U	90.00 U	180.00 U	90.00 U
D66211	RFETS	Heterogeneous	116	833	1.10 U	8.42	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D66213	RFETS	Heterogeneous	116	831	1.80 U	13.19	0.30 U	0.60 U	0.30 U	0.30 U	0.30 U	0.30 U
D66356	RFETS	Heterogeneous	116	831	1000.00 U	166.67 U	166.67 U	333.33 U	166.67 U	166.67 U	166.67 U	166.67 U
D66378	RFETS	Heterogeneous	116	831	1344.00 U	192.00 U	192.00 U	384.00 U	192.00 U	192.00 U	192.00 U	192.00 U
D66438	RFETS	Uncategorized Metal	117	480	17.60 U	5.56 J	1.60 U	1.60 U	1.60 U	1.60 U	3.20 U	1.60 U
D66523	RFETS	Solidified Organics	112	801	6306.66 U	573.33 U	573.33 U	573.33 U	573.33 U	573.33 U	573.33 U	1146.6 U
D66525	RFETS	Solidified Inorganics	111	800	1.87 U	15.55	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D66631	RFETS	Heterogeneous	116	831	5.50 U	48.16	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D66637	RFETS	Heterogeneous	116	831	56.00 U	25.59 J	8.00 U	16.00 U	8.00 U	8.00 U	8.00 U	8.00 U
D66641	RFETS	Heterogeneous	116	831	660.00 U	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U	120.00 U	60.00 U
D66649	RFETS	Lead/Cadmium Metal	123	339	616.00 U	56.00 U	56.00 U	56.00 U	56.00 U	56.00 U	112.00 U	56.00 U
D66773	RFETS	Uncategorized Metal	117	480	3.30 U	12.48	0.30 U	0.30 U	0.90 J	1.43 J	0.60 U	0.30 U
D66783	RFETS	Heterogeneous	116	831	2750.00 U	250.00 U	250.00 U	250.00 U	250.00 U	250.00 U	500.00 U	250.00 U
D66792	RFETS	Heterogeneous	116	831	1100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	200.00 U	100.00 U
D66860	RFETS	Heterogeneous	116	833	2.20 U	13.86	0.20 U	0.20 U	0.35 J	1.21 J	0.41 J	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D66875	RFETS	Heterogeneous	116	832	1.10 U	5.76	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D66948	RFETS	Heterogeneous	116	831	66.00 U	13.34 J	6.00 U	6.00 U	6.00 U	6.00 U	12.00 U	6.00 U
D66949	RFETS	Heterogeneous	116	831	6.60 U	13.62	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D66953	RFETS	Uncategorized Metal	117	480	11.20 U	2.96 J	1.60 U	3.20 U	1.60 U	1.60 U	1.60 U	1.60 U
D66958	RFETS	Heterogeneous	116	831	3.30 U	22.22	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D67009	RFETS	Solidified Organics	112	801	3740.00 U	739.16 J	340.00 U	340.00 U	340.00 U	340.00 U	680.00 U	340.00 U
D67012	RFETS	Solidified Organics	112	801	9900.00 U	1799.1 J	900.00 U	900.00 U	900.00 U	900.00 U	1800.0 U	900.00 U
D67047	RFETS	Solidified Inorganics	111	807	2.20 U	5.32	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D67251	RFETS	Uncategorized Metal	117	480	8400.00 U	1494.7 J	1200.0 U	2400.0 U	1200.0 U	1200.0 U	1200.0 U	1200.0 U
D67263	RFETS	Heterogeneous	116	831	99.00 U	9.45 J	9.00 U	9.00 U	9.00 U	9.00 U	18.00 U	9.00 U
D67277	RFETS	Heterogeneous	116	831	154.00 U	14.00 U	14.00 U	14.00 U	14.00 U	14.00 U	28.00 U	14.00 U
D67278	RFETS	Heterogeneous	116	831	1.10 U	1.31	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D67312	RFETS	Heterogeneous	116	825	2.20 U	11.14	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D67317	RFETS	Uncategorized Metal	117	480	1.87 U	20.00	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D67390	RFETS	Solidified Organics	112	801	1430.00 U	130.00 U	130.00 U	130.00 U	130.00 U	130.00 U	260.00 U	130.00 U
D67391	RFETS	Heterogeneous	116	833	1.60 U	26.96	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D67413	RFETS	Solidified Organics	112	801	8250.00 U	1799.2 J	750.00 U	750.00 U	750.00 U	750.00 U	1500.0 U	750.00 U
D67434	RFETS	Solidified Inorganics	111	800	2.80 U	14.94	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D67436	RFETS	Solidified Inorganics	111	800	0.93 U	10.37	0.13 U	0.27 U	0.13 U	0.28 J	0.13 U	0.13 U
D67441	RFETS	Solidified Inorganics	111	800	2.80 U	7.70	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D67448	RFETS	Heterogeneous	116	852	1.10 U	4.38	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D67455	RFETS	Filter	119	490	4.40 U	2.77 J	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D67464	RFETS	Heterogeneous	116	831	2640.00 U	240.00 U	240.00 U	240.00 U	240.00 U	240.00 U	480.00 U	240.00 U
D67524	RFETS	Heterogeneous	116	832	204.52 U	18.59 U	18.59 U	18.59 U	18.59 U	18.59 U	37.19 U	18.59 U
D67532	RFETS	Lead/Cadmium Metal	123	339	69.30 U	6.30 U	6.30 U	6.30 U	6.30 U	6.30 U	12.60 U	6.30 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D67535	RFETS	Heterogeneous	116	831	1.40 U	19.28	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D67539	RFETS	Solidified Organics	112	801	3520.00 U	629.76 J	320.00 U	320.00 U	320.00 U	320.00 U	640.00 U	320.00 U
D67541	RFETS	Heterogeneous	116	825	1.10 U	7.66	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D67545	RFETS	Solidified Organics	112	801	990.00 U	90.00 U	90.00 U	90.00 U	90.00 U	90.00 U	180.00 U	90.00 U
D67567	RFETS	Heterogeneous	116	831	3.30 U	32.27	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D67582	RFETS	Heterogeneous	116	831	12.39 J	28.03	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D67603	RFETS	Uncategorized Metal	117	480	143.00 U	29.89 J	13.00 U	13.00 U	13.00 U	13.00 U	26.00 U	13.00 U
D67654	RFETS	Solidified Inorganics	111	800	1.87 U	14.87	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D67657	RFETS	Solidified Inorganics	111	800	1.87 U	20.04	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D67678	RFETS	Heterogeneous	116	825	4.73 U	33.45	0.43 U	0.43 U	0.43 U	0.43 U	0.86 U	0.43 U
D67698	RFETS	Heterogeneous	116	831	9.60 U	138.80	1.60 U	3.20 U	1.60 U	4.53 J	1.60 U	1.60 U
D67707	RFETS	Heterogeneous	116	831	3.00 U	7.89	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D67734	RFETS	Heterogeneous	116	831	1210.00 U	110.00 U	110.00 U	110.00 U	110.00 U	110.00 U	220.00 U	110.00 U
D67735	RFETS	Uncategorized Metal	117	480	19.80 U	18.17	1.80 U	1.80 U	1.80 U	1.80 U	3.60 U	1.80 U
D67759	RFETS	Heterogeneous	116	831	30.80 U	86.98	2.80 U	2.80 U	2.80 U	2.86 J	5.60 U	2.80 U
D67764	RFETS	Heterogeneous	116	831	12.00 U	142.10	2.00 U	4.00 U	2.00 U	3.15 J	2.00 U	2.00 U
D67766	RFETS	Heterogeneous	116	831	9.00 U	60.77	1.50 U	3.00 U	1.50 U	1.50 U	1.50 U	1.50 U
D67781	RFETS	Heterogeneous	116	831	3.30 U	24.04	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D67908	RFETS	Heterogeneous	116	832	1.10 U	7.25	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D67929	RFETS	Heterogeneous	116	832	0.60 U	0.88 J	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D67989	RFETS	Heterogeneous	116	831	5.50 U	4.42 J	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D67994	RFETS	Heterogeneous	116	831	16.00 U	2.67 U	2.67 U	5.33 U	2.67 U	2.67 U	2.67 U	2.67 U
D68044	RFETS	Heterogeneous	116	825	5.50 U	25.12	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D68096	RFETS	Heterogeneous	116	821	2.20 U	9.29	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D68247	RFETS	Solidified Inorganics	111	800	0.93 U	7.90	0.13 U	0.27 U	0.13 U	0.13 U	0.13 U	0.13 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D68248	RFETS	Solidified Organics	112	801	1650.00 U	150.00 U	150.00 U	150.00 U	150.00 U	150.00 U	300.00 U	150.00 U
D68250	RFETS	Solidified Organics	112	801	1870.00 U	170.00 U	170.00 U	170.00 U	170.00 U	170.00 U	340.00 U	170.00 U
D68254	RFETS	Solidified Inorganics	111	800	1.87 U	8.28	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D68256	RFETS	Solidified Inorganics	111	800	2.80 U	11.30	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D68276	RFETS	Heterogeneous	116	852	1.10 U	1.80	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D68277	RFETS	Uncategorized Metal	117	480	5.50 U	27.39	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D68377	RFETS	Uncategorized Metal	117	480	1.40 U	2.52	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D68460	RFETS	Heterogeneous	116	832	0.60 U	0.13 J	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D68480	RFETS	Solidified Inorganics	111	800	0.89 J	3.64	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D68486	RFETS	Solidified Organics	112	801	1540.00 U	140.00 U	140.00 U	140.00 U	140.00 U	140.00 U	280.00 U	140.00 U
D68514	RFETS	Uncategorized Metal	117	480	1.10 U	7.36	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D68538	RFETS	Lead/Cadmium Metal	123	339	0.70 U	2.10	0.10 U	0.20 U	0.10 U	0.25 J	0.24 J	0.10 U
D68600	RFETS	Heterogeneous	116	825	198.00 U	18.00 U	18.00 U	18.00 U	18.00 U	18.00 U	36.00 U	18.00 U
D68601	RFETS	Heterogeneous	116	825	77.00 U	13.12 J	7.00 U	7.00 U	7.00 U	7.00 U	14.00 U	7.00 U
D68702	RFETS	Heterogeneous	116	833	1.10 U	4.93	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D68724	RFETS	Heterogeneous	116	831	1980.00 U	180.00 U	180.00 U	180.00 U	180.00 U	180.00 U	360.00 U	180.00 U
D68756	RFETS	Heterogeneous	116	831	1.40 U	17.92	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D68885	RFETS	Heterogeneous	116	831	440.00 U	40.00 U	40.00 U	40.00 U	40.00 U	40.00 U	80.00 U	40.00 U
D68896	RFETS	Heterogeneous	116	831	2343.00 U	213.00 U	213.00 U	213.00 U	213.00 U	213.00 U	426.00 U	213.00 U
D68975	RFETS	Solidified Organics	112	801	5940.00 U	540.00 U	540.00 U	540.00 U	540.00 U	540.00 U	1080.0 U	540.00 U
D68999	RFETS	Heterogeneous	116	821	4.40 U	26.90	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D69091	RFETS	Heterogeneous	116	825	5.50 U	30.60	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D69095	RFETS	Heterogeneous	116	833	5.94 U	38.57	0.54 U	0.54 U	0.54 U	0.54 U	1.08 U	0.54 U
D69113	RFETS	Heterogeneous	116	831	528.00 U	48.00 U	48.00 U	48.00 U	48.00 U	48.00 U	96.00 U	48.00 U
D69250	RFETS	Heterogeneous	116	833	1.10 U	7.05	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D69287	RFETS	Heterogeneous	116	821	1518.00 U	138.00 U	138.00 U	138.00 U	138.00 U	138.00 U	276.00 U	138.00 U
D69306	RFETS	Solidified Organics	112	801	2750.00 U	250.00 U	250.00 U	250.00 U	250.00 U	250.00 U	500.00 U	250.00 U
D69312	RFETS	Solidified Inorganics	111	800	2.80 U	14.58	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D69364	RFETS	Heterogeneous	116	833	3.30 U	11.79	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D69400	RFETS	Heterogeneous	116	831	407.00 U	37.00 U	37.00 U	37.00 U	37.00 U	37.00 U	74.00 U	37.00 U
D69406	RFETS	Heterogeneous	116	831	550.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	100.00 U	50.00 U
D69413	RFETS	Heterogeneous	116	831	6.60 U	6.00	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D69418	RFETS	Heterogeneous	116	831	807.40 U	73.40 U	73.40 U	73.40 U	73.40 U	73.40 U	146.80 U	73.40 U
D69431	RFETS	Heterogeneous	116	831	320.00 U	53.33 U	53.33 U	106.67 U	53.33 U	53.33 U	53.33 U	53.33 U
D69518	RFETS	Heterogeneous	116	833	2.20 U	11.12	0.20 U	0.20 U	0.20 U	0.74 J	0.47 J	0.20 U
D69602	RFETS	Heterogeneous	116	821	11.00 U	68.03	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	1.00 U
D69759	RFETS	Heterogeneous	116	833	3.30 U	16.46	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D69855	RFETS	Heterogeneous	116	833	2.20 U	8.80	0.20 U	0.20 U	0.32 J	1.19 J	0.40 U	0.20 U
D69877	RFETS	Heterogeneous	116	825	5.50 U	17.53	0.50 U	0.50 U	0.71 J	2.53 J	1.00 U	0.50 U
D69883	RFETS	Heterogeneous	116	825	3.30 U	10.62	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D69975	RFETS	Heterogeneous	116	821	7.70 U	44.47	0.70 U	0.70 U	0.70 U	0.70 U	1.40 U	0.70 U
D70063	RFETS	Heterogeneous	116	821	5.61 U	34.81	0.51 U	0.51 U	0.56 J	1.92 J	1.02 U	0.51 U
D70077	RFETS	Heterogeneous	116	831	660.00 U	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U	120.00 U	60.00 U
D70229	RFETS	Heterogeneous	116	831	2.20 U	19.11	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D70353	RFETS	Heterogeneous	116	833	2.20 U	19.69	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D70370	RFETS	Heterogeneous	116	821	3.30 U	13.37	0.30 U	0.30 U	0.30 U	0.72 J	0.60 U	0.30 U
D70379	RFETS	Heterogeneous	116	833	1.10 U	10.35	0.10 U	0.10 U	0.10 U	0.10 J	0.20 U	0.10 U
D70383	RFETS	Heterogeneous	116	833	2.20 U	11.65	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D70446	RFETS	Uncategorized Metal	117	480	7.00 U	37.41	1.00 U	2.00 U	1.00 U	7.19 J	1.61 J	1.00 U
D70448	RFETS	Heterogeneous	116	831	1650.00 U	150.00 U	150.00 U	150.00 U	150.00 U	150.00 U	300.00 U	150.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D70455	RFETS	Heterogeneous	116	831	7.70 U	50.51	0.70 U	0.70 U	0.70 U	0.70 U	1.40 U	0.70 U
D70543	RFETS	Solidified Organics	112	801	9108.00 U	828.00 U	828.00 U	828.00 U	828.00 U	828.00 U	1656.0 U	828.00 U
D70661	RFETS	Filter	0	331	3.60 U	13.50	0.60 U	1.20 U	0.60 U	0.60 U	0.60 U	0.60 U
D70669	RFETS	Uncategorized Metal	117	480	1.10 U	11.84	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D70675	RFETS	Solidified Organics	112	801	2.15 J	1.88	0.60 J	0.10 U	0.11 J	0.29 J	0.20 U	0.10 U
D70682	RFETS	Heterogeneous	116	831	495.00 U	45.00 U	45.00 U	45.00 U	45.00 U	45.00 U	90.00 U	45.00 U
D70696	RFETS	Heterogeneous	116	821	6.60 U	35.16	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D70734	RFETS	Heterogeneous	116	833	0.60 U	7.19	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D70780	RFETS	Heterogeneous	116	832	0.60 U	6.00	0.10 U	0.20 U	0.10 U	0.14 J	0.10 U	0.10 U
D70856	RFETS	Heterogeneous	116	833	1.10 U	5.02	0.10 U	0.10 U	0.13 J	0.42 J	0.20 U	0.10 U
D70882	RFETS	Heterogeneous	116	831	154.00 U	24.14 J	14.00 U	14.00 U	14.00 U	14.00 U	28.00 U	14.00 U
D70937	RFETS	Filter	0	331	3.00 U	15.32	0.50 U	1.00 U	0.50 U	1.11 J	0.92 J	0.50 U
D71019	RFETS	Solidified Organics	112	801	14.30 U	4.06 J	2.38 J	1.30 U	1.30 U	1.30 U	2.60 U	1.30 U
D71020	RFETS	Solidified Organics	112	801	13822.9 J	911.50 U	911.50 U	911.50 U	911.50 U	911.50 U	1823.0 U	911.50 U
D71022	RFETS	Solidified Organics	112	801	7200.00 U	1200.0 U	1200.0 U	2400.0 U	2551.2 J	8626.8 J	2212.8 J	1200.0 U
D71241	RFETS	Heterogeneous	116	833	0.60 U	5.29	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D71351	RFETS	Uncategorized Metal	117	480	0.70 U	1.19	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D71354	RFETS	Uncategorized Metal	117	480	0.70 U	1.63	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D71385	RFETS	Heterogeneous	116	833	3.30 U	23.02	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D71494	RFETS	Solidified Organics	112	801	2.31 J	2.17 J	0.10 U	0.10 U	0.10 U	0.26 J	0.20 U	0.10 U
D71504	RFETS	Solidified Organics	112	801	2.20 U	2.55	0.54 J	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D71514	RFETS	Heterogeneous	116	833	2.20 U	14.12	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D71521	RFETS	Heterogeneous	116	825	2.20 U	9.03	0.20 U	0 20 U	0.20 U	0.20 U	0.40 U	0.20 U
D71638	RFETS	Uncategorized Metal	117	480	7.00 U	10.80	1.00 U	2.00 U	1.00 U	1.00 U	1.00 U	1.00 U
D71804	RFETS	Heterogeneous	116	832	0.70 U	1.48	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D71829	RFETS	Heterogeneous	116	852	2420.00 U	220.00 U	220.00 U	220.00 U	220.00 U	220.00 U	440.00 U	220.00 U
D71838	RFETS	Heterogeneous	116	831	83.60 U	11.96 J	7.60 U	7.60 U	7.60 U	7.60 U	15.20 U	7.60 U
D71921	RFETS	Heterogeneous	116	833	0.70 U	7.15	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D71932	RFETS	Solidified Organics	112	801	48047.5 U	4367.9 U	4367.9 U	4367.9 U	4367.9 U	4367.9 U	8735.9 U	4367.9 U
D71933	RFETS	Solidified Organics	112	801	0.60 U	2.01	0.10 U	0.20 U	0.10 U	0.16 J	0.11 J	0.10 U
D71934	RFETS	Solidified Organics	112	801	1.48 J	2.88	0.10 U	0.20 U	0.10 U	0.17 J	0.10 U	0.10 U
D71936	RFETS	Heterogeneous	116	833	238.34 U	21.67 U	21.67 U	21.67 U	21.67 U	21.67 U	43.33 U	21.67 U
D71937	RFETS	Heterogeneous	116	833	200.00 U	33.33 U	33.33 U	66.67 U	33.33 U	33.33 U	33.33 U	33.33 U
D71938	RFETS	Heterogeneous	116	833	19.80 U	1.80 U	1.80 U	1.80 U	1.80 U	1.92 J	3.60 U	1.80 U
D71940	RFETS	Solidified Organics	112	801	11000.0 U	1000.0 U	1000.0 U	1000.0 U	1000.0 U	1000.0 U	2000.0 U	1000.0 U
D71941	RFETS	Solidified Organics	112	801	11000.0 U	1000.0 U	1000.0 U	1000.0 U	1000.0 U	1000.0 U	2000.0 U	1000.0 U
D72010	RFETS	Heterogeneous	116	832	2.10 U	34.34	0.30 U	0.60 U	0.30 U	0.30 U	0.30 U	0.30 U
D72079	RFETS	Uncategorized Metal	117	480	71.50 U	43.37 J	6.50 U	6.50 U	6.50 U	6.50 U	13.00 U	6.50 U
D72127	RFETS	Solidified Organics	112	801	4.40 U	0.66 J	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D72128	RFETS	Solidified Organics	112	801	3446.04 J	6991.6	130.00 U	130.00 U	130.00 U	130.00 U	260.00 U	130.00 U
D72131	RFETS	Heterogeneous	116	833	1.60 U	0.75 J	0.48 J	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D72132	RFETS	Solidified Organics	112	801	538.32 J	370.66 J	48.00 U	96.00 U	48.00 U	48.00 U	48.00 U	48.00 U
D72133	RFETS	Solidified Organics	112	801	2.20 U	1.34 J	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D72136	RFETS	Solidified Organics	112	801	231.00 U	1395.5	21.00 U	21.00 U	21.00 U	21.00 U	42.00 U	21.00 U
D72139	RFETS	Solidified Organics	112	801	20.90 U	207.08	1.90 U	1.90 U	1.90 U	1.90 U	3.80 U	1.90 U
D72178	RFETS	Heterogeneous	116	821	3.30 U	8.16	0.30 U	0.30 U	0.37 J	1.67 J	0.60 U	0.30 U
D72186	RFETS	Heterogeneous	116	821	2.20 U	9.78	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D72195	RFETS	Heterogeneous	116	833	1.10 U	12.27	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D72255	RFETS	Heterogeneous	116	833	3.30 U	19.33	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D72267	RFETS	Solidified Inorganics	111	800	0.70 U	3.23	0.12 J	0.20 U	0.94 J	3.28	0.61 J	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D72293	RFETS	Heterogeneous	116	833	1.10 U	10.66	0.10 U	0.10 U	0.12 J	0.39 J	0.20 U	0.10 U
D72333	RFETS	Heterogeneous	116	831	3.30 U	18.22	0.30 U	0.30 U	0.30 U	0.46 J	0.60 U	0.30 U
D72339	RFETS	Heterogeneous	116	821	5.50 U	37.30	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
D72347	RFETS	Heterogeneous	116	833	1.10 U	9.87	0.10 U	0.10 U	0.10 U	0.11 J	0.20 U	0.10 U
D72375	RFETS	Heterogeneous	116	831	880.00 U	80.00 U	80.00 U	80.00 U	80.00 U	80.00 U	160.00 U	80.00 U
D72434	RFETS	Heterogeneous	116	831	2310.00 U	210.00 U	210.00 U	210.00 U	210.00 U	210.00 U	420.00 U	210.00 U
D72436	RFETS	Uncategorized Metal	117	480	3.50 J	17.20	0.30 U	0.60 U	0.30 U	0.30 U	0.30 U	0.30 U
D72542	RFETS	Heterogeneous	116	832	60.00 U	13.25 J	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
D72545	RFETS	Solidified Inorganics	111	800	0.70 U	5.28	0.10 U	0.20 U	0.10 U	0.64 J	0.13 J	0.10 U
D72546	RFETS	Heterogeneous	116	832	90.00 U	23.24 J	15.00 U	30.00 U	15.00 U	15.00 U	15.00 U	15.00 U
D72566	RFETS	Solidified Organics	112	801	8.80 U	5.58 J	7.46 J	0.80 U	0.80 U	0.80 U	1.60 U	0.80 U
D72598	RFETS	Heterogeneous	116	821	6.60 U	27.50	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D72618	RFETS	Heterogeneous	116	833	1.10 U	2.48	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D72619	RFETS	Solidified Organics	112	801	1.10 U	3.60	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D72623	RFETS	Solidified Organics	112	801	3.00 U	5.45	0.50 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U
D72631	RFETS	Solidified Organics	112	801	1.10 U	1.92	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D72632	RFETS	Solidified Organics	112	801	1.10 U	4.04	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D72673	RFETS	Heterogeneous	116	833	2.20 U	10.67	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D72819	RFETS	Heterogeneous	116	833	4.40 U	35.51	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D72822	RFETS	Heterogeneous	116	831	1.60 U	19.90	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D72831	RFETS	Uncategorized Metal	117	480	28.00 U	22.59 J	4.00 U	8.00 U	4.00 U	4.00 U	4.00 U	4.00 U
D72887	RFETS	Heterogeneous	116	833	7.35 J	9.47	0.10 U	0.10 U	0.41 J	1.53	0.40 J	0.10 U
D72923	RFETS	Heterogeneous	116	833	8.67 J	33.51	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D72932	RFETS	Heterogeneous	116	825	3.30 U	20.99	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D73054	RFETS	Heterogeneous	0	336	680.00 U	113.33 U	113.33 U	226.67 U	113.33 U	113.33 U	113.33 U	113.33 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D73074	RFETS	Heterogeneous	116	833	2.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D73117	RFETS	Uncategorized Metal	117	480	2.80 U	15.05	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D73123	RFETS	Heterogeneous	116	831	1386.00 U	126.00 U	126.00 U	126.00 U	126.00 U	126.00 U	252.00 U	126.00 U
D73134	RFETS	Heterogeneous	116	831	432.00 U	72.00 U	72.00 U	144.00 U	72.00 U	72.00 U	72.00 U	72.00 U
D73136	RFETS	Solidified Inorganics	111	807	0.70 U	3.39	0.10 U	0.20 U	0.10 U	0.49 J	0.12 J	0.10 U
D73274	RFETS	Heterogeneous	116	831	550.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	100.00 U	50.00 U
D73285	RFETS	Solidified Organics	112	801	1.10 U	4.71	0.34 J	0.10 U	0.10 U	0.12 J	0.20 U	0.10 U
D73293	RFETS	Solidified Organics	112	801	1.10 U	3.03	0.38 J	0.10 U	0.10 U	0.14 J	0.20 U	0.10 U
D73295	RFETS	Solidified Organics	112	801	1.10 U	2.65	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D73296	RFETS	Solidified Organics	112	801	1.10 U	2.37	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D73301	RFETS	Solidified Organics	112	801	2.20 U	9.08	0.50 J	0.20 U	0.20 U	0.30 J	0.40 U	0.20 U
D73605	RFETS	Lead/Cadmium Metal	123	339	0.70 U	3.87	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D73632	RFETS	Heterogeneous	116	825	7.70 U	5.16 J	0.70 U	0.70 U	0.70 U	1.49 J	1.40 U	0.70 U
D73667	RFETS	Solidified Organics	112	801	1.10 U	2.22	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D73672	RFETS	Solidified Organics	112	801	1.10 U	3.07	0.31 J	0.10 U	0.10 U	0.16 J	0.20 U	0.10 U
D73745	RFETS	Heterogeneous	116	832	0.70 U	9.49	0.10 U	0.20 U	0.40 J	1.13	0.36 J	0.10 U
D73828	RFETS	Heterogeneous	116	833	1.10 U	9.45	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D73848	RFETS	Heterogeneous	116	821	1.46 U	6.01	0.13 U	0.13 U	0.13 U	0.13 U	0.27 U	0.13 U
D73987	RFETS	Lead/Cadmium Metal	123	339	2.10 U	3.09	0.30 U	0.60 U	0.30 U	0.30 U	0.30 U	0.30 U
D74007	RFETS	Uncategorized Metal	117	480	2.10 U	19.46	0.30 U	0.60 U	0.30 U	0.30 U	0.30 U	0.30 U
D74110	RFETS	Heterogeneous	116	833	1.10 U	3.36	0.10 U	0.10 U	0.24 J	0.18 J	0.20 U	0.10 U
D74147	RFETS	Solidified Organics	112	801	8.80 U	3.80 J	0.80 U	0.80 U	0.80 U	0.80 U	1.60 U	0.80 U
D74156	RFETS	Solidified Organics	112	801	6.60 U	4.30 J	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D74374	RFETS	Heterogeneous	116	833	0.60 U	14.03	0.10 U	0.20 U	0.10 U	0.77 J	0.21 J	0.10 U
D74683	RFETS	Heterogeneous	116	821	16.50 U	106.54	1.50 U	1.50 U	1.50 U	1.50 U	3.00 U	1.50 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D74904	RFETS	Heterogeneous	116	832	0.60 U	4.59	0.10 U	0.20 U	0.10 U	0.19 J	0.20 J	0.10 U
D74913	RFETS	Heterogeneous	116	832	3.30 U	11.94	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D75039	RFETS	Heterogeneous	116	832	3.30 U	1.74 J	0.30 U	0.30 U	2.22 J	19.98	12.03	0.30 U
D75265	RFETS	Heterogeneous	116	833	13.20 U	24.74	1.20 U	1.20 U	1.20 U	1.20 U	2.40 U	1.20 U
D75267	RFETS	Heterogeneous	116	832	2.20 U	18.50	0.20 U	0.20 U	0.23 J	0.47 J	0.40 U	0.20 U
D75278	RFETS	Heterogeneous	116	832	3.30 U	36.13	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D75399	RFETS	Heterogeneous	116	833	4.40 U	16.33	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D75564	RFETS	Heterogeneous	116	825	1.46 U	7.19	0.13 U	0.13 U	0.13 U	0.13 U	0.27 U	0.13 U
D75868	RFETS	Heterogeneous	116	825	6.60 U	23.45	0.60 U	0.60 U	0.60 U	0.60 U	1.20 U	0.60 U
D75888	RFETS	Heterogeneous	116	833	1.10 U	8.30	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D75926	RFETS	Heterogeneous	116	832	4.40 U	27.16	0.40 U	0.40 U	0.40 U	0.40 U	0.80 U	0.40 U
D75930	RFETS	Heterogeneous	116	832	600.00 U	100.00 U	100.00 U	200.00 U	100.00 U	100.00 U	100.00 U	100.00 U
D75947	RFETS	Heterogeneous	116	832	1.10 U	8.86	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D75976	RFETS	Heterogeneous	116	833	0.80 U	14.43	0.13 U	0.27 U	0.13 U	0.13 U	0.13 U	0.13 U
D76044	RFETS	Heterogeneous	116	831	4.05 J	25.07	0.27 U	0.27 U	0.27 U	0.27 U	0.53 U	0.27 U
D76050	RFETS	Heterogeneous	116	832	1.10 U	4.80	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76054	RFETS	Heterogeneous	116	831	3.30 U	20.75	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D76098	RFETS	Heterogeneous	116	832	1.40 U	18.43	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D76135	RFETS	Solidified Organics	112	801	160.00 U	26.67 U	26.67 U	53.33 U	26.67 U	26.67 U	26.67 U	26.67 U
D76136	RFETS	Solidified Inorganics	111	803	2.40 U	1.89 J	0.41 J	0.80 U	0.40 U	3.02 J	0.82 J	0.40 U
D76138	RFETS	Solidified Inorganics	111	800	0.60 U	1.21	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D76142	RFETS	Solidified Inorganics	111	800	1.44 U	2.56	0.24 U	0.48 U	4.41	18.08	3.45	0.24 U
D76143	RFETS	Solidified Inorganics	111	803	1.80 U	2.12 J	0.37 J	0.60 U	0.30 J	2.25 J	0.63 J	0.30 U
D76144	RFETS	Solidified Inorganics	111	800	4.00 U	0.67 U	0.67 U	1.33 U	0.67 U	0.67 U	0.67 U	0.67 U
D76146	RFETS	Solidified Inorganics	0	292	0.60 U	3.33	0.10 U	0.20 U	0.10 U	0.22 J	0.10 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D76147	RFETS	Solidified Inorganics	111	803	1.10 U	1.69	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76182	RFETS	Solidified Inorganics	111	800	7.70 U	71.38	0.70 U	0.70 U	9.54	38.35	7.49	0.70 U
D76183	RFETS	Solidified Inorganics	111	800	0.80 U	3.96	0.13 U	0.27 U	0.18 J	0.66 J	0.17 J	0.13 U
D76185	RFETS	Solidified Inorganics	111	800	0.60 U	0.33 J	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D76187	RFETS	Solidified Inorganics	111	803	3.00 U	1.45 J	0.50 U	1.00 U	1.11 J	3.57 J	0.91 J	0.50 U
D76189	RFETS	Solidified Inorganics	111	803	12.00 U	2.00 U	2.00 U	4.00 U	2.00 U	2.00 U	2.00 U	2.00 U
D76192	RFETS	Solidified Inorganics	111	803	0.60 U	1.11	0.10 U	0.20 U	0.10 U	0.21 J	0.10 U	0.10 U
D76194	RFETS	Solidified Inorganics	111	800	0.60 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D76195	RFETS	Solidified Organics	112	801	5280.00 U	480.00 U	480.00 U	480.00 U	480.00 U	480.00 U	960.00 U	480.00 U
D76196	RFETS	Solidified Organics	112	801	1000.00 U	166.67 U	166.67 U	333.33 U	166.67 U	166.67 U	166.67 U	166.67 U
D76199	RFETS	Solidified Inorganics	111	800	0.60 U	1.31	0.10 U	0.20 U	0.10 U	0.17 U	0.10 U	0.10 U
D76200	RFETS	Solidified Organics	112	801	3800.00 U	633.33 U	633.33 U	1266.6 U	633.33 U	633.33 U	633.33 U	633.33 U
D76203	RFETS	Solidified Organics	112	801	1340.00 J	223.33 U	223.33 U	446.67 U	223.33 U	223.33 U	223.33 U	223.33 U
D76205	RFETS	Solidified Inorganics	111	800	0.60 U	2.66	0.10 U	0.20 U	0.10 U	0.43 J	0.10 U	0.10 U
D76206	RFETS	Solidified Inorganics	111	803	2.40 U	1.09 J	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D76217	RFETS	Heterogeneous	116	833	6.75 J	7.45 J	1.00 U	2.00 U	1.00 U	1.00 U	1.00 U	1.00 U
D76282	RFETS	Solidified Inorganics	111	800	68.00 U	11.33 U	11.33 U	22.67 U	11.33 U	11.33 U	11.33 U	11.33 U
D76283	RFETS	Solidified Organics	112	801	540.00 U	90.00 U	90.00 U	180.00 U	90.00 U	90.00 U	90.00 U	90.00 U
D76287	RFETS	Solidified Inorganics	111	800	32.00 U	5.33 U	5.33 U	10.67 U	5.33 U	5.33 U	5.33 U	5.33 U
D76293	RFETS	Heterogeneous	116	833	4.40 U	0.59 J	0.40 U	0.40 U	0.96 J	2.65 J	0.80 U	0.40 U
D76302	RFETS	Solidified Inorganics	111	800	18.00 U	34.11	3.00 U	6.00 U	101.74	386.14	30.35	3.00 U
D76303	RFETS	Solidified Inorganics	111	803	1.60 U	1.56 J	0.30 J	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D76305	RFETS	Solidified Inorganics	111	800	72.00 U	12.00 U	12.00 U	24.00 U	12.00 U	12.00 U	12.00 U	12.00 U
D76306	RFETS	Heterogeneous	116	833	8.80 U	1.84 J	0.80 U	0.80 U	2.86 J	8.72	1.60 U	0.80 U
D76362	RFETS	Heterogeneous	116	833	40.00 U	6.67 U	6.67 U	13.33 U	6.67 U	6.67 U	6.67 U	6.67 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D76406	RFETS	Heterogeneous	116	831	1.10 U	4.58	0.10 U	0.10 U	0.10 U	0.15 J	0.20 U	0.10 U
D76437	RFETS	Heterogeneous	116	833	2.20 U	24.00	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D76443	RFETS	Heterogeneous	116	825	3.30 U	5.66	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D76452	RFETS	Heterogeneous	116	825	1.90 U	9.30	0.20 U	0.20 U	0.20 U	0.20 U	0.30 U	0.20 U
D76454	RFETS	Heterogeneous	116	825	1.10 U	5.19	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76456	RFETS	Heterogeneous	116	825	1.10 U	6.59	0.10 U	0.10 U	0.10 U	0.10 J	0.20 U	0.10 U
D76461	RFETS	Heterogeneous	116	825	3.30 U	12.50	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D76463	RFETS	Heterogeneous	116	825	3.30 U	21.50	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D76470	RFETS	Solidified Inorganics	111	803	0.60 U	3.29	0.10 U	0.20 U	0.10 U	0.23 J	0.10 U	0.10 U
D76587	RFETS	Heterogeneous	116	825	1.10 U	7.16	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76596	RFETS	Heterogeneous	116	825	1.10 U	14 57	0.10 U	0.10 U	0.10 U	0.10 J	0.20 U	0.10 U
D76627	RFETS	Heterogeneous	116	825	1.10 U	7.34	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76630	RFETS	Heterogeneous	116	825	1.10 U	8.52	0.10 U	0.10 U	0.19 J	0.71 J	0.20 U	0.10 U
D76635	RFETS	Heterogeneous	116	825	2.20 U	5.12	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D76652	RFETS	Heterogeneous	116	833	0.60 U	8.81	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U
D76677	RFETS	Solidified Inorganics	111	800	26.40 U	2.40 U	2.40 U	2.40 U	2.40 U	2.40 U	4.80 U	2.40 U
D76710	RFETS	Heterogeneous	116	833	22.00 U	9.15 J	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	2.00 U
D76712	RFETS	Heterogeneous	116	833	3.30 U	13.98	0.30 U	0.30 U	0.30 U	0.30 U	0.60 U	0.30 U
D76715	RFETS	Heterogeneous	116	832	2.20 U	10.09	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D76811	RFETS	Heterogeneous	116	832	2.40 J	20.45	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U
D76908	RFETS	Heterogeneous	116	833	1.10 U	3.36	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U
D76911	RFETS	Heterogeneous	116	832	1.20 U	19.65	0.20 U	0.40 U	0.56 J	1.42 J	0.20 U	0.20 U
D77088	RFETS	Heterogeneous	116	833	1.20 U	14.47	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U
D77227	RFETS	Heterogeneous	116	833	2.40 U	32.95	0.40 U	0.80 U	0.40 U	0.40 U	0.40 U	0.40 U
D77285	RFETS	Heterogeneous	116	833	2.20 U	8.62	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U

Table [illegible]-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	Methyl isobutyl ketone	Toluene	Tetra chloro ethene	Chloro benzene	Ethyl benzene	m,p-Xylene	o-Xylene	Bromoform
D77621	RFETS	Heterogeneous	0	336	1.87 U	9.47	0.27 U	0.53 U	0.27 U	0.27 U	0.27 U	0.27 U
D80765	RFETS	Heterogeneous	116	833	2.20 U	10.02	0.20 U	0.20 U	0.20 U	0.51 J	0.40 U	0.20 U
D80772	RFETS	Heterogeneous	116	833	11.00 U	24.39	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	1.00 U
D80774	RFETS	Heterogeneous	116	833	34.10 U	3.10 U	3.10 U	3.10 U	3.10 U	3.10 U	6.20 U	3.10 U
D80776	RFETS	Heterogeneous	116	832	1.34 J	11.32	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
000365	RFETS	Uncategorized Metal	217	480	12.00 U	8.70 U	8.70 U
000371	INEL	Graphite	215	300	0.03 U	0.01 U	0.02 U
000373	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
000384	RFETS	Uncategorized Metal	217	320	0.01 U	0.01 U	0.01 U
000393	INEL	Uncategorized Metal	217	480	0.03 U	0.02 U	0.02 U
000401	RFETS	Inorganic Non-metal	222	371	0.02 U	0.01 U	0.01 U
000403	INEL	Inorganic Non-metal	218	440	0.03 U	0.02 U	0.02 U
000405	RFETS	Uncategorized Metal	217	480	0.94 U	0.66 U	0.87 U
000436	INEL	Solidified Organics	212	3	43.00 U	19.00 U	27.00 U
000442	INEL	Solidified Inorganics	213	4	0.05 U	0.02 U	0.03 U
000446	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 J
000478	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 J
000501	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
000558	INEL	Heterogeneous	221	464	0.10 U	0.07 U	0.07 U
000567	RFETS	Inorganic Non-metal	222	371	1.70 U	1.20 U	1.60 U
000568	RFETS	Solidified Organics	226	432	1.00 U	0.73 U	0.73 U
000593	INEL	Solidified Inorganics	211	7	0.02 U	0.01 J	0.02 J
000613	INEL	Graphite	215	300	0.03 U	0.02 U	0.02 U
000630	INEL	Solidified Inorganics	213	4	0.07 U	0.03 U	0.04 U
000648	RFETS	Solidified Inorganics	213	4	0.03 U	0.02 U	0.03 U
000675	RFETS	Inorganic Non-metal	218	440	0.16 U	0.11 U	0.15 U
000823	RFETS	Solidified Inorganics	213	4	0.02 U	0.02 U	0.02 U
000828	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
001016	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
001024	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
001084	INEL	Solidified Inorganics	213	4	0.02 U	0.01 U	0.01 U
001139	INEL	Solidified Inorganics	211	7	0.16 U	0.07 U	0.10 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
001157	INEL	Combustible	223	339	0.03 U	0.02 U	0.02 U
001161	INEL	Graphite	215	300	0.03 U	0.02 U	0.02 U
001258	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 U
001370	INEL	Combustible	223	339	0.14 U	0.08 U	0.09 U
001377	INEL	Combustible	223	339	0.03 U	0.02 U	0.02 U
001410	INEL	Solidified Inorganics	214	292	0.13 U	0.09 U	0.09 U
001437	RFETS	Solidified Inorganics	211	7	0.01 U	0.06 U	0.01 J
001475	RFETS	Solidified Inorganics	211	1	0.21 U	0.14 U	0.19 U
001493	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 U
001619	INEL	Graphite	215	300	0.03 U	0.02 U	0.02 U
001625	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001633	INEL	Solidified Organics	226	432	0.74 U	0.52 U	0.52 U
001655	INEL	Combustible	223	339	2.00 U	1.40 U	1.40 U
001662	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 JB
001663	RFETS	Solidified Organics	226	432	0.45 U	0.31 U	0.31 U
001667	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001670	RFETS	Salt Waste	224	411	0.04 U	0.03 U	0.04 U
001677	INEL	Heterogeneous	221	302	0.46 U	0.20 U	0.29 U
001678	RFETS	Combustible	223	339	0.10 U	0.07 U	0.10 U
001689	INEL	Heterogeneous	221	302	0.04 U	0.03 U	0.03 U
001692	RFETS	Solidified Organics	226	432	0.27 U	0.19 U	0.19 U
001695	INEL	Combustible	223	339	1.70 U	1.20 U	1.20 U
001697	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001751	RFETS	Uncategorized Metal	217	320	0.01 U	0.01 U	0.02 JB
001752	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001754	INEL	Uncategorized Metal	217	320	0.04 U	0.03 J	0.04 J
001757	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
001773	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001779	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
001784	INEL	Combustible	223	339	0.03 U	0.02 U	0.02 U
001813	INEL	Solidified Inorganics	213	4	5.70 U	2.50 U	3.60 U
001873	INEL	Solidified Inorganics	214	292	0.04 U	0.03 U	0.03 U
001899	RFETS	Solidified Inorganics	211	3	140.00 U	97.00 U	130.00 U
001900	INEL	Solidified Inorganics	214	292	0.04 U	0.03 U	0.03 U
001919	RFETS	Uncategorized Metal	217	320	0.01 U	0.01 U	0.01 U
001937	RFETS	Solidified Organics	212	3	17.00 U	12.00 U	16.00 U
002013	RFETS	Solidified Organics	212	3	12.00 U	8.20 U	11.00 U
002046	INEL	Solidified Organics	212	3	36.00 U	16.00 U	23.00 U
002065	INEL	Solidified Inorganics	214	292	0.11 U	0.08 U	0.10 U
002084	INEL	Solidified Inorganics	213	4	0.04 U	0.02 U	0.02 U
002220	RFETS	Uncategorized Metal	217	481	0.03 U	0.02 U	0.03 U
002222	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
002338	RFETS	Inorganic Non-metal	222	371	0.84 U	0.58 U	0.58 U
002354	INEL	Combustible	223	339	0.08 U	0.04 U	0.05 U
002363	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
002365	INEL	Uncategorized Metal	217	480	0.07 U	0.05 U	0.05 U
002542	INEL	Solidified Organics	212	3	7.70 U	3.40 U	4.90 U
002678	RFETS	Solidified Organics	226	432	0.95 U	0.66 U	0.66 U
002791	INEL	Inorganic Non-metal	222	371	0.05 U	0.04 U	0.04 U
002797	RFETS	Solidified Organics	226	432	0.48 U	0.33 U	0.33 U
002814	RFETS	Solidified Inorganics	211	7	0.22 U	0.15 U	0.20 U
003017	INEL	Solidified Inorganics	211	1	0.05 U	0.04 U	0.05 U
003088	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
003091	RFETS	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
003111	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
003121	RFETS	Solidified Inorganics	211	7	0.15 U	0.10 U	0.14 U
003129	RFETS	Solidified Inorganics	211	7	0.02 U	0.02 U	0.02 J
003130	RFETS	Solidified Inorganics	211	7	0.04 U	0.03 U	0.04 J
003173	RFETS	Solidified Inorganics	211	7	0.02 U	0.01 U	0.02 J
003181	RFETS	Solidified Inorganics	211	7	0.02 U	0.01 U	0.01 U
003189	INEL	Solidified Organics	212	3	79.00 U	35.00 U	50.00 U
003192	RFETS	Solidified Inorganics	211	7	0.25 U	0.17 U	0.23 U
003215	RFETS	Solidified Inorganics	211	7	0.02 U	0.01 U	0.03 J
003277	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 J
003394	RFETS	Solidified Inorganics	211	7	0.03 U	0.02 U	0.03 U
003406	RFETS	Solidified Inorganics	211	7	0.01 U	0.02 J	0.04 J
003455	RFETS	Solidified Inorganics	211	3	270.00 U	190.00 U	250.00 U
003547	RFETS	Solidified Inorganics	211	7	0.10 U	0.07 U	0.09 U
003577	RFETS	Solidified Inorganics	211	1	0.01 U	0.01 U	0.01 U
003854	INEL	Solidified Organics	212	3	36.00 U	16.00 U	23.00 U
003890	INEL	Solidified Inorganics	111	7	0.03 U	0.02 U	0.03 U
003921	INEL	Solidified Inorganics	111	7	0.04 U	0.02 U	0.03 U
003991	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
003997	INEL	Combustible	223	339	0.05 U	0.03 U	0.03 U
004099	INEL	Solidified Inorganics	211	1	0.02 U	0.01 U	0.01 U
004111	RFETS	Salt Waste	224	411	0.03 U	0.02 U	0.03 U
004112	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
004123	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
004125	INEL	Uncategorized Metal	217	480	0.03 U	0.02 U	0.02 U
004150	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
004160	INEL	Combustible	223	339	140.00 U	77.00 U	93.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
004166	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
004186	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
004195	RFETS	Salt Waste	224	411	0.01 U	0.01 U	0.01 U
004196	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
004206	INEL	Combustible	223	339	0.02 U	0.01 U	0.01 U
004208	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
004283	INEL	Solidified Inorganics	211	1	0.02 U	0.01 U	0.01 U
004326	INEL	Solidified Inorganics	213	4	0.02 U	0.01 U	0.01 U
004393	INEL	Solidified Inorganics	211	1	0.02 U	0.01 U	0.02 U
004410	INEL	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
004495	INEL	Solidified Inorganics	213	4	0.02 U	0.01 U	0.01 U
004516	INEL	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
004884	INEL	Solidified Inorganics	213	4	0.03 U	0.01 U	0.02 U
004963	INEL	Combustible	223	339	0.08 U	0.04 U	0.05 U
004968	RFETS	Uncategorized Metal	217	320	0.58 U	0.41 U	0.54 U
004981	RFETS	Uncategorized Metal	217	320	0.01 U	0.01 U	0.01 U
004988	RFETS	Salt Waste	224	411	0.03 U	0.02 U	0.03 U
005006	RFETS	Salt Waste	224	411	0.03 U	0.02 U	0.03 U
005012	INEL	Combustible	223	339	0.02 U	0.01 U	0.01 U
005015	INEL	Solidified Organics	226	432	1.50 U	1.00 U	1.00 U
005235	INEL	Solidified Organics	226	432	0.03 U	0.02 U	0.02 U
005262	INEL	Solidified Organics	212	3	220.00 U	98.00 U	140.00 U
005358	INEL	Solidified Inorganics	211	1	0.02 U	0.01 U	0.01 U
005398	INEL	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
005415	INEL	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
005530	INEL	Graphite	215	303	0.02 U	0.01 U	0.02 U
005535	INEL	Solidified Organics	226	432	0.06 U	0.04 U	0.04 U

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
005735	INEL	Solidified Inorganics	211	7	0.03 U	0.02 U	0.03 U
005738	INEL	Solidified Inorganics	211	7	0.02 U	0.02 U	0.02 U
006242	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
006252	RFETS	Lead/Cadmium Metal Waste	123	339	3.90 U	2.80 U	3.70 U
006325	RFETS	Solidified Inorganics	213	4	0.01 U	0.01 J	0.04 J
006669	INEL	Solidified Inorganics	214	292	0.15 U	0.10 U	0.14 U
006773	RFETS	Solidified Inorganics	213	4	0.11 U	0.08 U	0.10 U
006857	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
006865	RFETS	Solidified Organics	226	432	0.08 U	0.06 U	0.07 U
006876	INEL	Filter	219	335	0.02 U	0.01 U	0.02 U
006879	INEL	Solidified Organics	226	432	0.10 U	0.07 U	0.07 U
006886	INEL	Solidified Organics	226	432	0.33 U	0.23 U	0.23 U
007034	INEL	Combustible	216	337	2.10 U	1.50 U	1.50 U
007146	INEL	Inorganic Non-metal	222	371	1.70 U	1.20 U	1.20 U
007170	INEL	Combustible	216	337	0.40 U	0.22 U	0.26 U
007231	INEL	Filter	219	338	0.18 U	0.10 U	0.12 U
007511	INEL	Inorganic Non-metal	122	374	0.04 U	0.03 U	0.04 U
007518	INEL	Inorganic Non-metal	122	374	0.06 U	0.04 U	0.06 U
007667	INEL	Salt Waste	124	411	0.01 U	0.01 U	0.01 U
007920	INEL	Filter	121	302	0.24 U	0.17 U	0.22 U
008203	INEL	Inorganic Non-metal	118	440	0.06 U	0.04 U	0.06 U
008207	INEL	Heterogeneous	116	336	0.07 U	0.05 U	0.07 U
008218	INEL	Heterogeneous	116	330	0.07 U	0.05 U	0.07 U
008269	INEL	Uncategorized Metal	117	320	0.19 U	0.14 U	0.18 U
008287	INEL	Inorganic Non-metal	122	374	0.03 U	0.02 U	0.03 U
008359	INEL	Heterogeneous	116	330	0.19 U	0.14 U	0.18 U
008383	INEL	Lead/Cadmium Metal Waste	123	339	5.20 U	3.70 U	4.90 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
008848	INEL	Inorganic Non-metal	218	440	0.60 JB	0.28 JB	0.42 JB
008859	INEL	Inorganic Non-metal	218	440	0.45 U	0.31 U	0.31 U
008860	INEL	Uncategorized Metal	217	480	1.10 U	0.79 U	0.79 U
008864	INEL	Uncategorized Metal	217	480	0.10 U	0.07 U	0.07 U
008872	INEL	Solidified Inorganics	214	292	0.04 U	0.03 U	0.04 U
008874	RFETS	Uncategorized Metal	217	480	35.00 U	24.00 U	33.00 U
008878	INEL	Uncategorized Metal	217	480	4.80 U	3.30 U	3.30 U
008880	RFETS	Graphite	115	312	1.40 U	0.95 U	1.30 U
009006	INEL	Solidified Inorganics	211	7	0.05 JB	0.04 JB	0.06 JB
009011	RFETS	Solidified Inorganics	211	7	0.01 U	0.01 J	0.02 JB
009061	RFETS	Inorganic Non-metal	218	440	0.10 U	0.07 U	0.09 U
009180	INEL	Combustible	223	339	0.90 U	0.49 U	0.59 U
009225	INEL	Uncategorized Metal	217	481	0.03 U	0.02 U	0.02 U
009252	INEL	Combustible	223	339	21.00 U	15.00 U	15.00 U
009296	INEL	Combustible	223	339	3.00 U	2.10 U	2.10 U
009299	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
009399	INEL	Inorganic Non-metal	218	440	0.39 U	0.27 U	0.27 U
009422	RFETS	Combustible	216	337	5.60 U	3.90 U	5.20 U
009423	INEL	Combustible	216	337	1.80 U	0.78 U	1.10 U
009435	INEL	Combustible	216	337	0.39 U	0.27 U	0.27 U
009449	INEL	Inorganic Non-metal	218	440	0.04 U	0.03 U	0.03 U
009471	INEL	Combustible	216	337	0.09 U	0.05 U	0.06 U
009475	INEL	Inorganic Non-metal	218	442	0.72 U	0.31 U	0.45 U
009489	INEL	Combustible	216	337	0.23 U	0.13 U	0.15 U
009587	INEL	Uncategorized Metal	117	320	0.01 U	0.01 U	0.01 U
009591	INEL	Inorganic Non-metal	118	440	0.04 U	0.03 U	0.04 U
009592	INEL	Inorganic Non-metal	118	440	0.07 U	0.05 U	0.08 J

Table C2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
009596	INEL	Uncategorized Metal	117	320	0.14 U	0.09 U	0.13 U
009599	INEL	Inorganic Non-metal	118	440	0.03 U	0.02 U	0.03 U
009602	INEL	Inorganic Non-metal	218	442	2.00 U	1.40 U	1.40 U
009694	INEL	Graphite	215	300	0.02 U	0.02 J	0.03 J
009735	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
009773	INEL	Combustible	223	339	5.40 U	2.40 U	3.40 U
009787	RFETS	Solidified Organics	212	3	180.00 U	130.00 U	170.00 U
009873	RFETS	Solidified Inorganics	211	1	0.05 U	0.03 U	0.05 U
010216	INEL	Filter	219	338	1.10 U	0.61 U	0.74 U
010224	INEL	Filter	219	338	0.34 U	0.18 U	0.22 U
010230	INEL	Heterogeneous	216	330	0.18 U	0.10 U	0.15 J
010273	INEL	Combustible	216	337	0.16 U	0.09 U	0.11 U
010295	INEL	Inorganic Non-metal	218	442	0.06 U	0.04 U	0.04 U
010305	RFETS	Inorganic Non-metal	218	442	0.70 U	0.49 U	0.65 U
010364	RFETS	Combustible	216	337	0.89 U	0.62 U	0.83 U
010371	INEL	Combustible	216	337	0.40 U	0.25 U	0.28 U
010407	RFETS	Uncategorized Metal	217	480	0.12 U	0.10 J	0.19 J
010411	INEL	Combustible	216	337	2.00 U	1.40 U	1.40 U
010415	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
010426	INEL	Inorganic Non-metal	218	442	0.02 U	0.01 U	0.01 U
010463	INEL	Solidified Inorganics	213	4	0.30 U	0.21 U	0.21 U
010487	INEL	Salt Waste	224	414	0.54 U	0.38 U	0.38 U
010492	INEL	Uncategorized Metal	217	480	0.58 U	0.41 U	0.41 U
010498	INEL	Uncategorized Metal	217	480	0.05 U	0.02 U	0.03 U
010510	RFETS	Heterogeneous	216	336	1.70 U	1.20 U	1.60 U
010546	RFETS	Heterogeneous	216	330	47.00 U	32.00 U	43.00 U
010578	INEL	Solidified Organics	226	432	1.00 U	0.71 U	0.71 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
010588	RFETS	Solidified Inorganics	211	2	0.88 U	0.61 U	0.82 U
010663	INEL	Combustible	216	337	0.58 U	0.32 U	0.38 U
010676	INEL	Heterogeneous	216	330	0.46 U	0.25 U	0.31 U
010800	INEL	Filter	219	338	0.16 U	0.09 U	0.10 U
010807	INEL	Combustible	216	337	1.30 U	0.92 U	0.92 U
010808	INEL	Combustible	216	337	0.38 U	0.16 U	0.25 JB
010814	RFETS	Solidified Inorganics	211	1	0.36 U	0.25 U	0.33 U
010837	INEL	Solidified Organics	226	432	0.45 U	0.31 U	0.31 U
010848	INEL	Filter	219	338	0.44 U	0.24 U	0.29 U
010883	INEL	Solidified Organics	226	432	1.20 U	0.81 U	0.81 U
010921	INEL	Inorganic Non-metal	222	371	0.10 U	0.07 U	0.07 U
011004	INEL	Uncategorized Metal	217	480	0.03 U	0.02 U	0.02 U
011021	INEL	Solidified Organics	226	432	0.18 U	0.12 U	0.12 U
011042	INEL	Inorganic Non-metal	218	442	0.62 U	0.44 U	0.44 U
011044	INEL	Inorganic Non-metal	218	440	0.36 U	0.25 U	0.25 U
011067	RFETS	Solidified Inorganics	213	4	1.20 U	0.82 U	1.10 U
011102	RFETS	Solidified Inorganics	211	1	0.28 U	0.20 U	0.26 U
011109	INEL	Solidified Inorganics	211	1	0.21 U	0.09 U	0.14 U
011147	INEL	Solidified Inorganics	213	4	0.25 U	0.11 U	0.16 U
011173	INEL	Uncategorized Metal	217	480	0.06 U	0.03 U	0.04 U
011194	INEL	Inorganic Non-metal	218	442	0.07 U	0.05 U	0.05 U
011393	INEL	Uncategorized Metal	217	480	0.15 U	0.10 U	0.10 U
011416	INEL	Combustible	216	337	0.66 U	0.46 U	0.46 U
011433	INEL	Heterogeneous	216	330	0.58 U	0.32 U	0.38 U
011498	RFETS	Solidified Organics	226	432	1.70 U	1.20 U	1.20 U
011529	INEL	Uncategorized Metal	217	480	0.03 U	0.02 U	0.02 U
011601	INEL	Heterogeneous	216	336	1.40 U	0.74 U	0.90 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
011607	INEL	Heterogeneous	216	330	0.03 U	0.02 U	0.02 U
011637	RFETS	Filter	219	338	0.88 U	0.61 U	0.82 U
011735	INEL	Heterogeneous	216	330	0.89 U	0.62 U	0.62 U
011749	INEL	Inorganic Non-metal	225	441	0.25 U	0.18 U	0.18 U
011785	RFETS	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
012021	INEL	Solidified Inorganics	211	1	0.39 U	0.27 U	0.27 U
012108	INEL	Solidified Inorganics	214	292	0.39 U	0.27 U	0.27 U
012111	INEL	Combustible	216	337	1.90 U	1.00 U	1.20 U
012215	INEL	Uncategorized Metal	217	480	0.42 U	0.29 U	0.29 U
012313	INEL	Heterogeneous	216	336	0.70 U	0.38 U	0.46 U
012320	INEL	Heterogeneous	216	336	2.00 U	1.40 U	1.40 U
012356	INEL	Filter	219	338	0.25 U	0.31 J	0.24 J
012357	RFETS	Uncategorized Metal	217	480	3.20 U	2.20 U	2.90 U
012433	INEL	Filter	219	338	0.22 U	0.12 U	0.15 U
012469	RFETS	Solidified Inorganics	211	1	0.36 U	0.25 U	0.33 U
012471	RFETS	Filter	219	338	0.19 U	0.13 U	0.27 JB
012487	INEL	Inorganic Non-metal	218	440	0.02 U	0.01 U	0.02 JB
012494	INEL	Heterogeneous	216	330	1.20 U	0.83 U	0.83 U
012541	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.03 J
012553	INEL	Solidified Inorganics	211	1	0.03 U	0.09 J	0.09 J
012571	INEL	Uncategorized Metal	217	320	0.02 U	0.01 U	0.01 U
012611	INEL	Solidified Inorganics	211	1	0.62 U	0.44 U	0.44 U
012634	INEL	Solidified Inorganics	211	1	1.70 U	1.20 U	1.20 U
012749	INEL	Solidified Inorganics	211	1	0.33 U	0.23 U	0.23 U
012766	INEL	Heterogeneous	216	336	3.00 U	2.10 U	2.10 U
012802	INEL	Combustible	216	337	1.30 U	0.57 U	0.82 U
012875	RFETS	Solidified Organics	226	432	4.00 U	2.80 U	2.80 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
012878	INEL	Uncategorized Metal	217	480	0.68 U	0.30 U	0.43 U
012891	INEL	Heterogeneous	216	330	0.34 U	0.24 U	0.24 U
012902	INEL	Filter	219	338	0.02 U	0.01 U	0.02 U
012920	INEL	Inorganic Non-metal	222	371	1.20 U	0.83 U	0.83 U
012985	INEL	Inorganic Non-metal	222	371	2.00 U	1.40 U	1.40 U
012986	INEL	Heterogeneous	221	302	1.60 B	0.96 JB	2.30 B
012998	INEL	Combustible	216	337	0.68 U	0.48 U	0.48 U
013106	INEL	Solidified Inorganics	111	7	0.02 U	0.01 JB	0.02 J
013229	RFETS	Solidified Organics	226	432	0.15 U	0.10 U	0.10 U
013231	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
013252	INEL	Inorganic Non-metal	222	371	0.03 U	0.02 U	0.02 U
013266	INEL	Combustible	223	339	0.42 U	0.29 U	0.29 U
013269	INEL	Inorganic Non-metal	218	440	0.06 U	0.03 U	0.04 U
013313	INEL	Inorganic Non-metal	218	440	0.03 U	0.02 U	0.02 U
013331	INEL	Salt Waste	124	411	0.07 U	0.05 U	0.07 U
013342	INEL	Inorganic Non-metal	218	440	0.02 U	0.01 U	0.02 J
013346	RFETS	Inorganic Non-metal	222	371	0.02 U	0.02 U	0.02 U
013618	INEL	Heterogeneous	216	330	2.00 U	1.40 U	1.40 U
013677	INEL	Filter	219	338	0.06 U	0.03 U	0.04 U
013751	INEL	Uncategorized Metal	217	480	0.89 U	0.62 U	0.62 U
013763	INEL	Combustible	223	339	16.00 U	10.00 U	11.00 U
013773	RFETS	Solidified Inorganics	111	7	0.08 U	0.07 J	0.14 JB
013818	RFETS	Solidified Inorganics	211	1	0.02 U	0.02 J	0.03 J
013820	RFETS	Solidified Inorganics	211	1	0.03 U	0.02 U	0.02 U
013847	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
013860	INEL	Combustible	223	339	0.08 U	0.04 U	0.05 U
013876	RFETS	Solidified Inorganics	211	7	0.10 U	0.07 U	0.09 U

Table 2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
014007	INEL	Solidified Inorganics	211	1	0.03 U	0.02 U	0.02 U
014009	INEL	Solidified Inorganics	211	7	0.19 JB	0.10 JB	0.17 JB
014010	INEL	Solidified Inorganics	211	7	0.02 U	0.01 J	0.03 J
014127	RFETS	Solidified Inorganics	211	7	0.02 U	0.02 J	0.05 J
014170	INEL	Solidified Inorganics	211	7	0.02 U	0.01 U	0.02 U
014330	INEL	Graphite	215	303	0.05 U	0.02 U	0.03 U
014334	INEL	Filter	219	335	0.07 U	0.04 U	0.05 U
014339	INEL	Solidified Organics	226	432	0.06 U	0.04 U	0.04 U
014342	INEL	Graphite	215	303	0.08 U	0.04 U	0.05 U
014345	INEL	Solidified Organics	226	432	0.05 U	0.03 U	0.04 J
014346	INEL	Combustible	223	339	0.02 U	0.01 U	0.02 U
014348	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
014354	RFETS	Uncategorized Metal	217	481	0.01 U	0.01 U	0.01 U
014357	INEL	Combustible	223	339	16.00 U	10.00 U	11.00 U
014387	INEL	Solidified Inorganics	211	7	0.04 JB	0.04 JB	0.06 JB
014466	INEL	Heterogeneous	221	302	0.33 U	0.23 U	0.23 U
014484	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
014502	RFETS	Solidified Inorganics	211	1	0.01 U	0.02 J	0.03 J
014504	RFETS	Solidified Inorganics	211	1	0.03 U	0.02 U	0.03 U
014773	INEL	Solidified Inorganics	214	292	0.05 U	0.04 U	0.05 U
015228	RFETS	Solidified Organics	226	432	0.18 U	0.12 U	0.12 U
015231	INEL	Inorganic Non-metal	218	440	0.03 U	0.02 U	0.02 U
015241	INEL	Inorganic Non-metal	218	442	0.05 U	0.04 U	0.04 U
015249	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 U
015262	RFETS	Solidified Organics	226	432	1.70 U	1.20 U	1.20 U
015267	INEL	Uncategorized Metal	217	480	1.50 U	1.00 U	1.00 U
015338	INEL	Solidified Inorganics	211	7	0.02 U	0.01 J	0.02 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
015434	RFETS	Solidified Organics	226	432	0.04 U	0.03 U	0.03 U
015440	RFETS	Solidified Organics	226	432	0.39 U	0.27 U	0.27 U
015515	RFETS	Solidified Organics	212	3	28.00 U	20.00 U	26.00 U
015532	RFETS	Solidified Organics	212	3	87.00 U	60.00 U	81.00 U
015543	INEL	Solidified Organics	212	3	37.00 U	26.00 U	26.00 U
015627	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
015655	INEL	Solidified Inorganics	211	7	0.02 U	0.01 U	0.01 U
015674	INEL	Graphite	215	300	0.02 U	0.01 U	0.02 J
015675	INEL	Uncategorized Metal	217	480	0.07 U	0.05 U	0.05 U
015777	RFETS	Solidified Organics	226	432	0.07 U	0.05 U	0.05 U
015785	RFETS	Solidified Inorganics	211	1	0.34 U	0.24 U	0.32 U
015786	INEL	Solidified Inorganics	211	1	0.03 U	0.01 U	0.02 U
016242	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 JB
016612	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
016613	INEL	Solidified Organics	226	432	0.21 U	0.15 U	0.15 U
016707	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
016738	RFETS	Solidified Inorganics	211	7	1.30 U	0.92 U	1.20 U
016790	INEL	Graphite	215	300	0.02 U	0.91 J	2.00
016807	INEL	Solidified Inorganics	211	1	0.43 JB	0.23 JB	0.34 JB
016842	INEL	Graphite	215	300	0.02 U	0.01 U	0.01 U
016855	RFETS	Solidified Organics	212	3	130.00 U	94.00 U	120.00 U
016869	INEL	Solidified Inorganics	211	7	0.18 U	0.08 U	0.11 U
016964	RFETS	Solidified Inorganics	211	7	1.20 U	0.82 U	1.10 U
016986	INEL	Inorganic Non-metal	218	442	0.18 U	0.12 U	0.12 U
017148	INEL	Solidified Organics	226	432	0.64 U	0.44 U	0.44 U
017190	INEL	Solidified Inorganics	211	7	9.90 B	4.60 B	6.80 B
017444	INEL	Graphite	215	300	0.03 U	0.02 U	0.02 U

Table 2-4

WIPP WASTE CHARACTERIZATION DATA

Gas Chromotography/Mass Spectrometry Results

(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
017453	INEL	Solidified Organics	212	3	39.00 U	27.00 U	36.00 U
017486	INEL	Solidified Inorganics	211	1	0.16 U	0.07 U	0.10 U
017491	INEL	Graphite	215	300	0.18 U	0.08 U	0.11 U
017495	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
017496	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
017698	RFETS	Solidified Inorganics	211	292	2.50 U	1.70 U	2.30 U
017709	INEL	Solidified Inorganics	211	1	0.02 U	0.01 U	0.01 U
017728	RFETS	Solidified Inorganics	211	1	0.70 U	0.49 U	0.65 U
017742	INEL	Inorganic Non-metal	218	440	0.60 U	0.42 U	0.42 U
017756	RFETS	Solidified Organics	226	432	1.70 U	1.20 U	1.20 U
017759	INEL	Solidified Organics	226	432	1.20 U	0.83 U	0.83 U
017788	INEL	Solidified Inorganics	211	7	1.20 U	0.52 U	0.75 U
017863	INEL	Filter	119	376	0.10 U	0.07 U	0.09 U
018111	RFETS	Solidified Inorganics	211	1	0.02 U	0.01 U	0.01 U
018219	RFETS	Solidified Inorganics	211	7	1.20 U	0.82 U	1.10 U
018299	INEL	Filter	119	376	0.15 U	0.10 U	0.14 U
018413	INEL	Graphite	115	300	0.01 U	0.01 U	0.01 U
018441	INEL	Graphite	115	300	0.03 U	0.02 U	0.03 U
018464	INEL	Graphite	115	300	0.01 U	0.01 U	0.01 U
018476	INEL	Solidified Inorganics	111	292	0.10 U	0.07 U	0.09 U
018491	INEL	Graphite	115	300	0.03 U	0.02 U	0.03 U
019410	INEL	Lead/Cadmium Metal Waste	123	339	0.65 U	0.45 U	0.60 U
019413	INEL	Lead/Cadmium Metal Waste	123	339	2.80 U	2.00 U	2.60 U
019572	INEL	Lead/Cadmium Metal Waste	123	339	0.06 U	0.04 U	0.06 U
021031	RFETS	Solidified Inorganics	214	292	0.04 U	0.03 U	0.04 U
021172	RFETS	Inorganic Non-metal	218	442	0.01 U	0.01 U	0.01 U
021306	INEL	Solidified Inorganics	213	4	0.03 U	0.02 U	0.03 J

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
021392	RFETS	Solidified Inorganics	214	292	0.16 U	0.11 U	0.15 U
021442	INEL	Solidified Inorganics	211	1	0.50 U	0.22 U	0.32 U
021488	RFETS	Inorganic Non-metal	218	442	0.04 U	0.03 U	0.04 U
021503	RFETS	Inorganic Non-metal	218	440	0.17 U	0.12 U	0.16 U
021511	RFETS	Solidified Inorganics	213	4	0.04 U	0.03 U	0.04 U
021512	INEL	Solidified Inorganics	211	7	0.95 U	0.66 U	0.66 U
021523	INEL	Solidified Organics	226	432	0.60 U	0.43 J	0.98 J
021565	INEL	Solidified Inorganics	211	7	0.90 U	0.39 U	0.57 U
021572	INEL	Solidified Inorganics	211	7	1.30	0.64 J	0.98 J
021600	RFETS	Solidified Inorganics	211	1	0.28 U	0.20 U	0.26 U
021631	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
021698	INEL	Inorganic Non-metal	218	440	1.10 U	0.78 U	0.78 U
021699	INEL	Solidified Inorganics	213	4	0.33 U	0.23 U	0.23 U
021700	RFETS	Solidified Inorganics	213	4	0.01 U	0.01 U	0.01 U
021806	INEL	Inorganic Non-metal	218	440	0.21 U	0.09 U	0.13 U
021816	INEL	Solidified Inorganics	211	1	0.11 U	0.05 U	0.07 U
021865	INEL	Solidified Inorganics	211	1	0.95 U	0.66 U	0.66 U
021993	INEL	Solidified Inorganics	211	2	0.45 U	0.31 U	0.31 U
022000	INEL	Inorganic Non-metal	218	440	0.10 U	0.07 U	0.07 U
022036	INEL	Uncategorized Metal	217	480	0.07 U	0.03 U	0.05 U
022038	RFETS	Uncategorized Metal	217	481	0.18 U	0.13 U	0.17 U
022052	INEL	Uncategorized Metal	217	481	0.02 U	0.01 U	0.02 U
022102	INEL	Solidified Organics	226	432	0.10 U	0.12 J	0.07 J
022105	INEL	Solidified Inorganics	211	1	0.42 U	0.29 U	0.29 U
022119	INEL	Inorganic Non-metal	222	371	0.54 U	0.37 U	0.37 U
022121	INEL	Solidified Inorganics	211	7	0.16 U	0.07 U	0.10 U
022135	INEL	Solidified Inorganics	211	7	0.68 U	0.48 U	0.48 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
022136	RFETS	Solidified Inorganics	211	7	0.88 U	0.61 U	0.82 U
022149	RFETS	Solidified Inorganics	211	7	0.22 U	0.15 U	0.20 U
022224	INEL	Solidified Inorganics	211	1	0.42 U	0.29 U	0.29 U
022226	RFETS	Inorganic Non-metal	222	371	1.20 U	0.82 U	1.10 U
022228	INEL	Inorganic Non-metal	222	371	0.15 U	0.26 J	0.21 J
022230	INEL	Inorganic Non-metal	222	371	0.12 U	0.11 J	0.08 U
022249	INEL	Uncategorized Metal	217	480	1.80 U	0.79 U	1.10 U
022275	INEL	Uncategorized Metal	217	480	0.40 U	0.18 U	0.26 U
022286	RFETS	Uncategorized Metal	217	480	0.50 U	0.35 U	0.47 U
022296	INEL	Solidified Inorganics	211	1	0.89 U	0.39 U	0.56 U
022306	INEL	Inorganic Non-metal	218	440	0.89 U	0.62 U	0.62 U
022338	INEL	Solidified Organics	212	3	120.00 U	83.00 U	83.00 U
022347	INEL	Inorganic Non-metal	218	440	0.28 U	0.12 U	0.18 U
022358	INEL	Uncategorized Metal	217	480	0.02 U	0.01 U	0.01 JB
022416	RFETS	Uncategorized Metal	217	320	0.05 U	0.04 U	0.05 U
022434	INEL	Solidified Organics	226	432	0.39 U	0.27 U	0.27 U
022442	INEL	Solidified Organics	226	432	1.14 U	0.77 U	0.77 U
022450	RFETS	Uncategorized Metal	217	320	0.09 U	0.06 U	0.08 U
022453	RFETS	Solidified Inorganics	211	2	0.08 U	0.14 J	0.19 J
022486	RFETS	Inorganic Non-metal	218	440	1.80 U	1.20 U	1.60 U
022511	INEL	Uncategorized Metal	217	480	0.92 U	0.64 U	0.64 U
022513	INEL	Solidified Organics	212	1	0.27 U	0.19 U	0.19 U
022517	INEL	Solidified Organics	226	432	0.11 U	0.08 U	0.09 J
022539	INEL	Solidified Organics	226	432	0.11 U	0.08 U	0.08 U
022549	INEL	Uncategorized Metal	217	480	1.50 U	1.00 U	1.00 U
022552	INEL	Inorganic Non-metal	218	442	0.34 U	0.24 U	0.24 U
022557	INEL	Uncategorized Metal	217	480	0.63 U	0.28 U	0.40 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
022595	INEL	Solidified Inorganics	211	1	0.30 U	0.13 U	0.19 U
022600	RFETS	Solidified Inorganics	213	4	0.27 U	0.27 J	0.26 U
022780	INEL	Solidified Inorganics	211	7	0.45 U	0.23 J	0.31 J
022789	INEL	Solidified Inorganics	211	7	0.66 U	0.46 U	0.46 U
022790	INEL	Solidified Inorganics	214	292	0.22 U	0.13 JB	0.29 JB
022803	INEL	Inorganic Non-metal	222	371	0.62 U	0.44 U	0.44 U
022807	INEL	Salt Waste	224	414	0.12 U	0.09 U	0.09 U
022811	INEL	Solidified Inorganics	211	7	0.38 U	0.16 U	0.24 U
022833	INEL	Solidified Inorganics	211	7	2.70 U	1.20 U	1.70 U
022841	INEL	Solidified Inorganics	211	7	1.40 U	0.63 U	0.90 U
022850	INEL	Solidified Inorganics	211	7	0.89 U	0.39 U	0.56 U
022874	INEL	Inorganic Non-metal	222	371	0.21 U	0.15 U	0.15 U
022894	INEL	Solidified Inorganics	211	1	0.13 U	0.31 J	0.62 J
022923	INEL	Inorganic Non-metal	218	440	0.39 U	0.27 U	0.27 U
023005	INEL	Solidified Inorganics	211	7	0.18 U	0.12 U	0.12 U
023027	RFETS	Uncategorized Metal	217	480	0.18 U	0.48 JB	0.99 JB
023041	RFETS	Inorganic Non-metal	222	371	0.28 U	0.20 U	0.26 U
023046	RFETS	Solidified Inorganics	211	7	0.50 U	0.35 U	0.47 U
023048	RFETS	Solidified Organics	226	432	0.42 U	0.29 U	0.29 U
023062	INEL	Solidified Inorganics	211	7	0.18 U	0.12 U	0.12 U
023211	INEL	Filter	119	376	0.06 U	0.04 U	0.06 U
023212	RFETS	Uncategorized Metal	217	480	0.58 U	0.41 U	0.54 U
023227	INEL	Uncategorized Metal	217	480	0.10 U	0.07 U	0.07 U
023229	INEL	Combustible	216	337	0.60 U	0.42 U	0.42 U
023235	RFETS	Heterogeneous	216	336	0.16 U	0.11 U	0.26 J
023238	INEL	Solidified Inorganics	211	1	0.20 U	0.09 U	0.12 U
023277	INEL	Inorganic Non-metal	222	371	1.00 U	0.73 U	0.73 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
023285	INEL	Solidified Inorganics	211	7	2.00 U	1.40 U	1.40 U
023312	INEL	Uncategorized Metal	217	480	0.90 U	0.39 U	0.57 U
023341	RFETS	Solidified Inorganics	211	7	0.01 U	0.05 J	0.08 J
023357	INEL	Solidified Inorganics	211	1	0.15 U	0.10 U	0.10 U
023383	RFETS	Uncategorized Metal	217	481	0.01 U	0.01 U	0.01 U
023384	INEL	Combustible	223	339	0.12 U	0.07 U	0.08 U
023388	INEL	Heterogeneous	216	330	0.10 U	0.06 U	0.07 U
023392	INEL	Solidified Inorganics	213	4	0.67 U	0.47 U	0.47 U
023407	INEL	Solidified Organics	212	3	23.00 U	16.00 U	16.00 U
023460	INEL	Inorganic Non-metal	218	442	0.03 U	0.02 U	0.02 U
023469	INEL	Solidified Organics	212	3	0.36 U	1.10 J	3.00 J
023492	INEL	Solidified Inorganics	211	7	0.74 U	0.52 U	0.52 U
023519	INEL	Solidified Organics	212	3	3.40 U	1.50 U	2.20 U
023535	INEL	Solidified Inorganics	211	7	0.89 U	0.39 U	0.56 U
023552	INEL	Solidified Inorganics	211	1	0.83 U	0.58 U	0.58 U
023662	INEL	Inorganic Non-metal	218	442	0.10 U	0.07 U	0.07 U
023681	INEL	Solidified Inorganics	211	1	0.36 U	0.25 U	0.25 U
023695	RFETS	Solidified Inorganics	211	2	0.18 U	0.13 U	0.17 U
023771	RFETS	Heterogeneous	216	330	0.19 U	0.13 U	0.18 U
023776	INEL	Heterogeneous	216	330	0.39 U	0.28 U	0.28 U
023805	INEL	Uncategorized Metal	217	480	0.02 U	0.06 J	0.04 JB
023827	RFETS	Uncategorized Metal	217	320	0.01 U	0.03 J	0.02 J
023840	INEL	Combustible	216	337	0.37 U	0.20 U	0.24 U
023901	INEL	Heterogeneous	216	330	0.36 U	0.19 U	0.24 U
023929	RFETS	Inorganic Non-metal	218	440	0.59 U	0.41 U	0.55 U
023959	INEL	Uncategorized Metal	217	480	1.30 U	0.93 U	0.93 U
024028	RFETS	Inorganic Non-metal	218	440	0.12 U	0.09 U	0.12 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
024029	INEL	Uncategorized Metal	217	480	0.02 U	0.01 U	0.02 U
024058	INEL	Solidified Inorganics	211	1	0.45 U	0.31 U	0.31 U
024059	INEL	Solidified Inorganics	214	292	0.18 U	0.32 J	0.18 J
024088	INEL	Combustible	216	337	0.34 U	0.24 U	0.24 U
024090	INEL	Combustible	216	337	0.56 U	0.30 U	0.37 U
024092	INEL	Combustible	216	337	1.50 U	1.00 U	1.00 U
024095	INEL	Combustible	216	337	0.23 U	0.13 U	0.15 U
024102	INEL	Combustible	216	337	0.51 U	0.35 U	0.35 U
024106	INEL	Combustible	216	337	0.74 U	0.52 U	0.52 U
024113	INEL	Combustible	216	337	0.22 U	0.16 U	0.16 U
024147	INEL	Solidified Inorganics	211	1	0.68 U	0.48 U	0.48 U
024165	INEL	Combustible	216	337	0.53 U	0.37 U	0.37 U
024168	INEL	Heterogeneous	216	330	0.03 U	0.02 U	0.02 U
024185	INEL	Salt Waste	224	409	0.03 U	0.12 J	0.07 J
024254	INEL	Salt Waste	224	414	0.05 U	0.25 J	0.34 J
024271	INEL	Inorganic Non-metal	218	442	0.10 U	0.07 U	0.07 U
024273	INEL	Inorganic Non-metal	218	442	0.19 U	0.14 U	0.14 U
024289	RFETS	Inorganic Non-metal	218	440	0.35 U	0.24 U	0.33 U
024295	INEL	Salt Waste	224	414	0.10 U	0.07 U	0.07 U
024308	INEL	Solidified Inorganics	211	2	0.15 U	0.42 J	0.51 J
024309	INEL	Solidified Inorganics	211	2	0.12 U	0.43 J	0.49 J
024311	INEL	Solidified Inorganics	211	2	0.24 U	0.33 J	0.45 J
024318	INEL	Solidified Inorganics	211	2	0.24 U	0.17 U	0.17 U
024506	INEL	Inorganic Non-metal	122	374	0.06 U	0.04 U	0.06 U
024507	INEL	Uncategorized Metal	117	480	0.07 U	0.05 U	0.07 U
024600	INEL	Uncategorized Metal	217	480	0.27 U	0.19 U	0.19 U
024638	INEL	Heterogeneous	216	330	0.13 U	0.09 U	0.09 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
024670	INEL	Solidified Inorganics	211	1	0.54 U	0.37 U	0.37 U
024765	INEL	Uncategorized Metal	217	480	0.06 U	0.03 U	0.04 U
024786	INEL	Uncategorized Metal	217	480	0.36 U	0.25 U	0.25 U
024850	INEL	Solidified Organics	226	432	0.10 U	0.07 U	0.07 U
024884	INEL	Uncategorized Metal	217	480	0.24 U	0.17 U	0.17 U
024897	INEL	Solidified Inorganics	211	1	0.24 U	0.17 U	0.17 U
024920	INEL	Solidified Inorganics	211	1	0.68 U	0.48 U	0.48 U
024991	INEL	Solidified Inorganics	211	1	0.33 U	0.23 U	0.23 U
025001	INEL	Solidified Organics	212	3	1.20 U	0.83 U	0.83 U
032284	INEL	Combustible	223	339	0.37 U	0.20 U	0.25 U
032287	RFETS	Solidified Inorganics	211	7	1.20 U	0.82 U	1.10 U
032467	INEL	Combustible	216	337	0.24 U	0.17 U	0.17 U
032469	RFETS	Combustible	216	337	0.39 U	0.27 U	0.36 U
032473	INEL	Combustible	216	337	1.60 U	1.10 U	1.10 U
032485	INEL	Combustible	216	337	0.93 U	0.65 U	0.65 U
032517	RFETS	Combustible	223	339	0.09 U	0.06 U	0.08 U
032521	INEL	Combustible	223	339	0.08 U	0.05 U	0.06 U
032525	INEL	Combustible	223	339	0.05 U	0.02 U	0.03 U
032526	INEL	Combustible	223	339	0.70 U	0.38 U	0.46 U
032529	INEL	Heterogeneous	216	336	0.22 U	0.10 U	0.11 J
032540	INEL	Uncategorized Metal	217	480	0.39 U	0.27 U	0.27 U
032632	INEL	Uncategorized Metal	217	480	0.18 U	0.10 U	0.12 U
032659	RFETS	Uncategorized Metal	217	480	0.31 U	0.21 U	0.28 U
032669	RFETS	Uncategorized Metal	217	480	0.33 U	0.23 U	0.31 U
032712	INEL	Uncategorized Metal	217	480	0.28 U	0.20 U	0.20 U
032715	RFETS	Combustible	216	337	0.09 U	0.06 U	0.08 U
032748	INEL	Combustible	223	339	0.22 U	0.10 U	0.11 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
032753	INEL	Uncategorized Metal	217	481	0.03 U	0.02 U	0.02 U
033091	INEL	Combustible	223	339	0.02 U	0.46 J	1.10
D01332	RFETS	Heterogeneous	116	832	0.50 U	0.50 U	1.00 U
D06288	RFETS	Filter	119	338	0.10 U	0.10 U	0.20 U
D06339	RFETS	Heterogeneous	0	337	0.20 U	0.20 U	0.40 U
D11129	RFETS	Filter	119	338	0.10 U	0.10 U	0.20 U
D13364	RFETS	Uncategorized Metal	117	480	0.10 U	0.10 U	0.10 U
D15680	RFETS	Heterogeneous	116	831	66.67 U	66.67 U	133.33 U
D17184	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.10 U
D32439	RFETS	Filter	119	338	0.10 U	0.10 U	0.20 U
D32978	RFETS	Solidified Inorganics	111	803	5.67 U	5.67 U	11.33 U
D35301	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.10 U
D35306	RFETS	Lead/Cadmium Metal Waste	123	339	0.20 U	0.20 U	0.40 U
D36606	RFETS	Uncategorized Metal	117	480	0.40 U	0.40 U	0.80 U
D38859	RFETS	Solidified Inorganics	111	803	0.10 U	0.10 U	0.10 U
D38989	RFETS	Heterogeneous	0	336	0.10 U	0.10 U	0.20 U
D41681	RFETS	Filter	119	338	0.10 U	0.10 U	0.20 U
D42280	RFETS	Solidified Organics	112	801	416.67 U	416.67 U	833.33 U
D47501	RFETS	Lead/Cadmium Metal Waste	0	341	0.10 U	0.10 U	0.20 U
D48182	RFETS	Filter	119	376	0.40 U	0.40 U	0.40 U
D48200	RFETS	Heterogeneous	116	831	8.00 U	8.00 U	8.00 U
D48377	RFETS	Inorganic Non-metal	118	368	0.10 U	0.10 U	0.10 U
D49662	RFETS	Solidified Inorganics	0	292	0.10 U	0.10 U	0.20 U
D49880	RFETS	Heterogeneous	0	336	0.27 U	0.27 U	0.53 U
D52318	RFETS	Lead/Cadmium Metal Waste	117	321	0.10 U	0.10 U	0.20 U
D52362	RFETS	Heterogeneous	116	821	0.20 U	0.20 U	0.20 U
D52726	RFETS	Heterogeneous	116	833	0.80 U	0.80 U	1.60 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D53672	RFETS	Inorganic Non-metal	118	440	0.20 U	0.20 U	0.20 U
D55656	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.30 U
D55680	RFETS	Heterogeneous	116	821	0.20 U	0.20 U	0.20 U
D55938	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.20 U
D56095	RFETS	Heterogeneous	0	337	0.10 U	0.10 U	0.20 U
D56595	RFETS	Heterogeneous	116	831	13.33 U	13.33 U	26.67 U
D56755	RFETS	Heterogeneous	116	821	0.10 U	0.10 U	0.10 U
D56823	RFETS	Heterogeneous	116	831	0.40 U	0.40 U	0.40 U
D57179	RFETS	Heterogeneous	0	330	2.00 U	2.00 U	4.00 U
D57522	RFETS	Heterogeneous	0	336	0.40 U	0.40 U	0.80 U
D57847	RFETS	Uncategorized Metal	117	480	0.40 U	0.40 U	0.80 U
D58143	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D58154	RFETS	Heterogeneous	116	831	0.40 U	0.40 U	0.80 U
D58627	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.40 U
D58889	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.40 U
D58970	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D59053	RFETS	Lead/Cadmium Metal Waste	0	341	0.10 U	0.10 U	0.20 U
D59703	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	1.00 U
D59899	RFETS	Filter	0	331	0.50 U	0.50 U	1.00 U
D60056	RFETS	Lead/Cadmium Metal Waste	0	341	0.27 U	0.27 U	0.53 U
D60218	RFETS	Heterogeneous	116	821	2.20	4.61	8.44
D60298	RFETS	Solidified Organics	112	801	573.33 U	573.33 U	573.33 U
D60320	RFETS	Heterogeneous	0	330	28.00 U	28.00 U	56.00 U
D60463	RFETS	Inorganic Non-metal	118	440	0.10 U	0.10 U	0.10 U
D60511	RFETS	Filter	119	491	0.20 U	0.20 U	0.20 U
D60635	RFETS	Filter	119	491	0.10 U	0.10 U	0.10 U
D61245	RFETS	Heterogeneous	0	336	0.47 U	0.47 U	0.93 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D61278	RFETS	Heterogeneous	0	336	0.27 U	0.27 U	0.53 U
D61473	RFETS	Heterogeneous	0	377	0.30 U	0.30 U	0.30 U
D61504	RFETS	Lead/Cadmium Metal Waste	0	341	0.10 U	0.10 U	0.20 U
D61747	RFETS	Heterogeneous	0	330	0.27 U	0.27 U	0.53 U
D62340	RFETS	Heterogeneous	116	821	0.40 U	0.40 U	0.40 U
D62478	RFETS	Filter	119	376	0.40 U	0.40 U	0.40 U
D62714	RFETS	Heterogeneous	116	831	1.00 U	1.00 U	2.00 U
D62851	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.30 U
D62855	RFETS	Heterogeneous	116	821	6.00 U	6.00 U	6.00 U
D63098	RFETS	Filter	0	331	0.50 U	0.50 U	1.00 U
D63229	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.20 U
D63281	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D63460	RFETS	Heterogeneous	116	831	0.10 U	0.10 U	0.10 U
D63654	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D63808	RFETS	Heterogeneous	116	831	0.80 U	0.80 U	0.80 U
D63817	RFETS	Heterogeneous	116	821	1.60 U	1.60 U	1.60 U
D63819	RFETS	Solidified Inorganics	111	807	0.20 U	0.20 U	0.20 U
D63999	RFETS	Filter	119	491	0.30 U	0.30 U	0.30 U
D64004	RFETS	Filter	0	331	0.40 U	0.40 U	0.80 U
D64137	RFETS	Filter	119	335	0.10 U	0.10 U	0.10 U
D64448	RFETS	Heterogeneous	116	821	110.00 U	110.00 U	110.00 U
D64555	RFETS	Solidified Organics	112	801	573.33 U	573.33 U	573.33 U
D64632	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.10 U
D64752	RFETS	Uncategorized Metal	117	480	2.00 U	2.00 U	4.00 U
D64758	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	1.00 U
D64860	RFETS	Heterogeneous	116	831	12.00 U	12.00 U	24.00 U
D65212	RFETS	Heterogeneous	116	831	9.00 U	9.00 U	18.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D65213	RFETS	Heterogeneous	116	831	8.00 U	8.00 U	16.00 U
D65214	RFETS	Heterogeneous	116	831	73.67 U	73.67 U	73.67 U
D65530	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D65535	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D65546	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D65600	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.10 U
D65731	RFETS	Inorganic Non-metal	122	375	0.40 U	0.40 U	0.40 U
D65734	RFETS	Uncategorized Metal	117	480	0.70 U	0.70 U	0.70 U
D65754	RFETS	Heterogeneous	116	831	0.67 U	0.67 U	1.33 U
D65757	RFETS	Heterogeneous	116	831	3.00 U	3.00 U	6.00 U
D65972	RFETS	Filter	119	376	0.30 U	0.30 U	0.30 U
D66128	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	1.00 U
D66157	RFETS	Uncategorized Metal	117	480	2.00 U	2.00 U	4.54 J
D66162	RFETS	Lead/Cadmium Metal Waste	123	339	90.00 U	90.00 U	90.00 U
D66211	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D66213	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.60 U
D66356	RFETS	Heterogeneous	116	831	166.67 U	166.67 U	333.33 U
D66378	RFETS	Heterogeneous	116	831	192.00 U	192.00 U	384.00 U
D66438	RFETS	Uncategorized Metal	117	480	1.60 U	1.60 U	1.60 U
D66523	RFETS	Solidified Organics	112	801	573.33 U	573.33 U	573.33 U
D66525	RFETS	Solidified Inorganics	111	800	0.27 U	0.27 U	0.53 U
D66631	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	0.50 U
D66637	RFETS	Heterogeneous	116	831	8.00 U	8.00 U	16.00 U
D66641	RFETS	Heterogeneous	116	831	60.00 U	60.00 U	60.00 U
D66649	RFETS	Lead/Cadmium Metal Waste	123	339	56.00 U	56.00 U	56.00 U
D66773	RFETS	Uncategorized Metal	117	480	0.30 U	0.30 U	0.30 U
D66783	RFETS	Heterogeneous	116	831	250.00 U	250.00 U	250.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D66792	RFETS	Heterogeneous	116	831	100.00 U	100.00 U	100.00 U
D66860	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D66875	RFETS	Heterogeneous	116	832	0.10 U	0.15 J	0.38 J
D66948	RFETS	Heterogeneous	116	831	6.00 U	6.00 U	6.00 U
D66949	RFETS	Heterogeneous	116	831	0.60 U	0.60 U	0.60 U
D66953	RFETS	Uncategorized Metal	117	480	1.60 U	1.60 U	3.20 U
D66958	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.30 U
D67009	RFETS	Solidified Organics	112	801	340.00 U	340.00 U	340.00 U
D67012	RFETS	Solidified Organics	112	801	900.00 U	900.00 U	900.00 U
D67047	RFETS	Solidified Inorganics	111	807	0.20 U	0.20 U	0.20 U
D67251	RFETS	Uncategorized Metal	117	480	1200.00 U	1200.0 U	2400.0 U
D67263	RFETS	Heterogeneous	116	831	9.00 U	9.00 U	9.00 U
D67277	RFETS	Heterogeneous	116	831	14.00 U	14.00 U	14.00 U
D67278	RFETS	Heterogeneous	116	831	0.10 U	0.10 U	0.10 U
D67312	RFETS	Heterogeneous	116	825	0.20 U	0.20 U	0.20 U
D67317	RFETS	Uncategorized Metal	117	480	0.27 U	0.27 U	0.27 U
D67390	RFETS	Solidified Organics	112	801	130.00 U	130.00 U	130.00 U
D67391	RFETS	Heterogeneous	116	833	0.27 U	0.27 U	0.53 U
D67413	RFETS	Solidified Organics	112	801	750.00 U	750.00 U	750.00 U
D67434	RFETS	Solidified Inorganics	111	800	0.40 U	0.40 U	0.80 U
D67436	RFETS	Solidified Inorganics	111	800	0.13 U	0.13 U	0.27 U
D67441	RFETS	Solidified Inorganics	111	800	0.40 U	0.40 U	0.80 U
D67448	RFETS	Heterogeneous	116	852	0.10 U	0.10 U	0.10 U
D67455	RFETS	Filter	119	490	0.40 U	0.40 U	0.40 U
D67464	RFETS	Heterogeneous	116	831	240.00 U	240.00 U	240.00 U
D67524	RFETS	Heterogeneous	116	832	18.59 U	18.59 U	18.59 U
D67532	RFETS	Lead/Cadmium Metal Waste	123	339	6.30 U	6.30 U	6.30 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D67535	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.40 U
D67539	RFETS	Solidified Organics	112	801	320.00 U	320.00 U	320.00 U
D67541	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.10 U
D67545	RFETS	Solidified Organics	112	801	90.00 U	90.00 U	90.00 U
D67567	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.30 U
D67582	RFETS	Heterogeneous	116	831	0.40 U	0.40 U	0.40 U
D67603	RFETS	Uncategorized Metal	117	480	13.00 U	13.00 U	13.00 U
D67654	RFETS	Solidified Inorganics	111	800	0.27 U	0.27 U	0.53 U
D67657	RFETS	Solidified Inorganics	111	800	0.27 U	0.27 U	0.53 U
D67678	RFETS	Heterogeneous	116	825	0.43 U	0.43 U	0.43 U
D67698	RFETS	Heterogeneous	116	831	1.60 U	1.60 U	3.20 U
D67707	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	1.00 U
D67734	RFETS	Heterogeneous	116	831	110.00 U	110.00 U	110.00 U
D67735	RFETS	Uncategorized Metal	117	480	1.80 U	1.80 U	1.80 U
D67759	RFETS	Heterogeneous	116	831	2.80 U	2.80 U	2.80 U
D67764	RFETS	Heterogeneous	116	831	2.00 U	2.00 U	4.00 U
D67766	RFETS	Heterogeneous	116	831	1.50 U	1.50 U	3.00 U
D67781	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.30 U
D67908	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.10 U
D67929	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D67989	RFETS	Heterogeneous	116	831	0.50 U	0.50 U	0.50 U
D67994	RFETS	Heterogeneous	116	831	2.67 U	2.67 U	5.33 U
D68044	RFETS	Heterogeneous	116	825	0.50 U	0.50 U	0.50 U
D68096	RFETS	Heterogeneous	116	821	0.20 U	0.20 U	0.20 U
D68247	RFETS	Solidified Inorganics	111	800	0.13 U	0.13 U	0.27 U
D68248	RFETS	Solidified Organics	112	801	150.00 U	150.00 U	150.00 U
D68250	RFETS	Solidified Organics	112	801	170.00 U	170.00 U	170.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D68254	RFETS	Solidified Inorganics	111	800	0.27 U	0.27 U	0.53 U
D68256	RFETS	Solidified Inorganics	111	800	0.40 U	0.40 U	0.80 U
D68276	RFETS	Heterogeneous	116	852	0.10 U	0.10 U	0.10 U
D68277	RFETS	Uncategorized Metal	117	480	0.50 U	0.50 U	0.50 U
D68377	RFETS	Uncategorized Metal	117	480	0.20 U	0.20 U	0.40 U
D68460	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D68480	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D68486	RFETS	Solidified Organics	112	801	140.00 U	140.00 U	140.00 U
D68514	RFETS	Uncategorized Metal	117	480	0.10 U	0.10 U	0.10 U
D68538	RFETS	Lead/Cadmium Metal Waste	123	339	0.10 U	0.10 U	0.20 U
D68600	RFETS	Heterogeneous	116	825	18.00 U	18.00 U	18.00 U
D68601	RFETS	Heterogeneous	116	825	7.00 U	7.00 U	7.00 U
D68702	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D68724	RFETS	Heterogeneous	116	831	180.00 U	180.00 U	180.00 U
D68756	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.40 U
D68885	RFETS	Heterogeneous	116	831	40.00 U	40.00 U	40.00 U
D68896	RFETS	Heterogeneous	116	831	213.00 U	213.00 U	213.00 U
D68975	RFETS	Solidified Organics	112	801	540.00 U	540.00 U	540.00 U
D68999	RFETS	Heterogeneous	116	821	0.40 U	0.40 U	0.40 U
D69091	RFETS	Heterogeneous	116	825	0.50 U	0.50 U	0.50 U
D69095	RFETS	Heterogeneous	116	833	0.54 U	0.54 U	0.54 U
D69113	RFETS	Heterogeneous	116	831	48.00 U	48.00 U	48.00 U
D69250	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D69287	RFETS	Heterogeneous	116	821	138.00 U	138.00 U	138.00 U
D69306	RFETS	Solidified Organics	112	801	250.00 U	250.00 U	250.00 U
D69312	RFETS	Solidified Inorganics	111	800	0.40 U	0.40 U	0.80 U
D69364	RFETS	Heterogeneous	116	833	0.30 U	0.30 U	0.30 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D69400	RFETS	Heterogeneous	116	831	37.00 U	37.00 U	37.00 U
D69406	RFETS	Heterogeneous	116	831	50.00 U	50.00 U	50.00 U
D69413	RFETS	Heterogeneous	116	831	0.60 U	0.60 U	0.60 U
D69418	RFETS	Heterogeneous	116	831	73.40 U	73.40 U	73.40 U
D69431	RFETS	Heterogeneous	116	831	53.33 U	53.33 U	106.67 U
D69518	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D69602	RFETS	Heterogeneous	116	821	1.00 U	1.00 U	1.00 U
D69759	RFETS	Heterogeneous	116	833	0.30 U	0.30 U	0.30 U
D69855	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D69877	RFETS	Heterogeneous	116	825	0.50 U	0.50 U	0.50 U
D69883	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.30 U
D69975	RFETS	Heterogeneous	116	821	0.70 U	0.70 U	0.70 U
D70063	RFETS	Heterogeneous	116	821	0.51 U	0.51 U	0.51 U
D70077	RFETS	Heterogeneous	116	831	60.00 U	60.00 U	60.00 U
D70229	RFETS	Heterogeneous	116	831	0.20 U	0.20 U	0.20 U
D70353	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D70370	RFETS	Heterogeneous	116	821	0.30 U	0.30 U	0.30 U
D70379	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D70383	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D70446	RFETS	Uncategorized Metal	117	480	1.00 U	1.00 U	2.00 U
D70448	RFETS	Heterogeneous	116	831	150.00 U	150.00 U	150.00 U
D70455	RFETS	Heterogeneous	116	831	0.70 U	0.70 U	0.70 U
D70543	RFETS	Solidified Organics	112	801	828.00 U	828.00 U	828.00 U
D70661	RFETS	Filter	0	331	0.60 U	0.60 U	1.20 U
D70669	RFETS	Uncategorized Metal	117	480	0.10 U	0.10 U	0.10 U
D70675	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D70682	RFETS	Heterogeneous	116	831	45.00 U	45.00 U	45.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D70696	RFETS	Heterogeneous	116	821	0.60 U	0.60 U	0.60 U
D70734	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.20 U
D70780	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D70856	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D70882	RFETS	Heterogeneous	116	831	14.00 U	14.00 U	14.00 U
D70937	RFETS	Filter	0	331	0.50 U	0.50 U	1.00 U
D71019	RFETS	Solidified Organics	112	801	1.30 U	1.30 U	1.30 U
D71020	RFETS	Solidified Organics	112	801	911.50 U	911.50 U	911.50 U
D71022	RFETS	Solidified Organics	112	801	1200.00 U	1200.0 U	2400.0 U
D71241	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.20 U
D71351	RFETS	Uncategorized Metal	117	480	0.10 U	0.10 U	0.20 U
D71354	RFETS	Uncategorized Metal	117	480	0.10 U	0.10 U	0.20 U
D71385	RFETS	Heterogeneous	116	833	0.30 U	0.30 U	0.30 U
D71494	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D71504	RFETS	Solidified Organics	112	801	0.20 U	0.20 U	0.20 U
D71514	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D71521	RFETS	Heterogeneous	116	825	0.20 U	0.20 U	0.20 U
D71638	RFETS	Uncategorized Metal	117	480	1.00 U	1.00 U	2.00 U
D71804	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D71829	RFETS	Heterogeneous	116	852	220.00 U	220.00 U	220.00 U
D71838	RFETS	Heterogeneous	116	831	7.60 U	7.60 U	7.60 U
D71921	RFETS	Heterogeneous	116	833	0.10 U	0.14 J	0.20 U
D71932	RFETS	Solidified Organics	112	801	4367.96 U	4367.9 U	4367.9 U
D71933	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.20 U
D71934	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.20 U
D71936	RFETS	Heterogeneous	116	833	21.67 U	21.67 U	21.67 U
D71937	RFETS	Heterogeneous	116	833	33.33 U	33.33 U	66.67 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D71938	RFETS	Heterogeneous	116	833	1.80 U	1.80 U	1.80 U
D71940	RFETS	Solidified Organics	112	801	1000.00 U	1000.0 U	1000.0 U
D71941	RFETS	Solidified Organics	112	801	1000.00 U	1000.0 U	1000.0 U
D72010	RFETS	Heterogeneous	116	832	0.30 U	0.30 U	0.60 U
D72079	RFETS	Uncategorized Metal	117	480	6.50 U	6.50 U	6.50 U
D72127	RFETS	Solidified Organics	112	801	0.40 U	0.40 U	0.40 U
D72128	RFETS	Solidified Organics	112	801	130.00 U	130.00 U	130.00 U
D72131	RFETS	Heterogeneous	116	833	0.27 U	0.27 U	0.53 U
D72132	RFETS	Solidified Organics	112	801	48.00 U	48.00 U	96.00 U
D72133	RFETS	Solidified Organics	112	801	0.20 U	0.20 U	0.20 U
D72136	RFETS	Solidified Organics	112	801	21.00 U	21.00 U	21.00 U
D72139	RFETS	Solidified Organics	112	801	1.90 U	1.90 U	1.90 U
D72178	RFETS	Heterogeneous	116	821	0.30 U	0.30 U	0.30 U
D72186	RFETS	Heterogeneous	116	821	0.20 U	0.20 U	0.20 U
D72195	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D72255	RFETS	Heterogeneous	116	833	0.30 U	0.30 U	0.30 U
D72267	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.10 U
D72293	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D72333	RFETS	Heterogeneous	116	831	0.30 U	0.37 J	0.30 U
D72339	RFETS	Heterogeneous	116	821	0.50 U	0.50 U	0.50 U
D72347	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D72375	RFETS	Heterogeneous	116	831	80.00 U	80.00 U	80.00 U
D72434	RFETS	Heterogeneous	116	831	210.00 U	210.00 U	210.00 U
D72436	RFETS	Uncategorized Metal	117	480	0.30 U	0.30 U	0.60 U
D72542	RFETS	Heterogeneous	116	832	10.00 U	10.00 U	20.00 U
D72545	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D72546	RFETS	Heterogeneous	116	832	15.00 U	15.00 U	30.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D72566	RFETS	Solidified Organics	112	801	0.80 U	0.80 U	0.80 U
D72598	RFETS	Heterogeneous	116	821	0.60 U	0.60 U	0.60 U
D72618	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D72619	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D72623	RFETS	Solidified Organics	112	801	0.50 U	0.50 U	1.00 U
D72631	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D72632	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D72673	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D72819	RFETS	Heterogeneous	116	833	0.40 U	0.40 U	0.40 U
D72822	RFETS	Heterogeneous	116	831	0.27 U	0.27 U	0.53 U
D72831	RFETS	Uncategorized Metal	117	480	4.00 U	4.00 U	8.00 U
D72887	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D72923	RFETS	Heterogeneous	116	833	0.40 U	0.40 U	0.40 U
D72932	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.30 U
D73054	RFETS	Heterogeneous	0	336	113.33 U	113.33 U	226.67 U
D73074	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D73117	RFETS	Uncategorized Metal	117	480	0.40 U	0.40 U	0.80 U
D73123	RFETS	Heterogeneous	116	831	126.00 U	126.00 U	126.00 U
D73134	RFETS	Heterogeneous	116	831	72.00 U	72.00 U	144.00 U
D73136	RFETS	Solidified Inorganics	111	807	0.10 U	0.10 U	0.20 U
D73274	RFETS	Heterogeneous	116	831	50.00 U	50.00 U	50.00 U
D73285	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73293	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73295	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73296	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73301	RFETS	Solidified Organics	112	801	0.20 U	0.20 U	0.20 U
D73605	RFETS	Lead/Cadmium Metal Waste	123	339	0.10 U	0.10 U	0.20 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D73632	RFETS	Heterogeneous	116	825	0.70 U	0.70 U	0.70 U
D73667	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73672	RFETS	Solidified Organics	112	801	0.10 U	0.10 U	0.10 U
D73745	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D73828	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D73848	RFETS	Heterogeneous	116	821	0.13 U	0.13 U	0.13 U
D73987	RFETS	Lead/Cadmium Metal Waste	123	339	0.30 U	0.30 U	0.60 U
D74007	RFETS	Uncategorized Metal	117	480	0.30 U	0.30 U	0.60 U
D74110	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D74147	RFETS	Solidified Organics	112	801	0.80 U	0.80 U	0.80 U
D74156	RFETS	Solidified Organics	112	801	0.60 U	0.60 U	0.60 U
D74374	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.20 U
D74683	RFETS	Heterogeneous	116	821	1.50 U	1.50 U	1.50 U
D74904	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.20 U
D74913	RFETS	Heterogeneous	116	832	0.30 U	0.30 U	0.30 U
D75039	RFETS	Heterogeneous	116	832	3.47	10.55	16.31
D75265	RFETS	Heterogeneous	116	833	1.20 U	1.20 U	1.20 U
D75267	RFETS	Heterogeneous	116	832	0.20 U	0.20 U	0.20 U
D75278	RFETS	Heterogeneous	116	832	0.30 U	0.30 U	0.30 U
D75399	RFETS	Heterogeneous	116	833	0.40 U	0.40 U	0.40 U
D75564	RFETS	Heterogeneous	116	825	0.13 U	0.13 U	0.21 J
D75868	RFETS	Heterogeneous	116	825	0.60 U	0.60 U	0.60 U
D75888	RFETS	Heterogeneous	116	833	0.10 U	0.15 J	0.49 J
D75926	RFETS	Heterogeneous	116	832	0.40 U	0.40 U	0.40 U
D75930	RFETS	Heterogeneous	116	832	100.00 U	100.00 U	200.00 U
D75947	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.10 U
D75976	RFETS	Heterogeneous	116	833	0.13 U	0.13 U	0.27 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D76044	RFETS	Heterogeneous	116	831	0.27 U	0.27 U	0.27 U
D76050	RFETS	Heterogeneous	116	832	0.10 U	0.30 J	0.80 J
D76054	RFETS	Heterogeneous	116	831	0.30 U	0.30 U	0.30 U
D76098	RFETS	Heterogeneous	116	832	0.20 U	0.20 U	0.40 U
D76135	RFETS	Solidified Organics	112	801	26.67 U	26.67 U	53.33 U
D76136	RFETS	Solidified Inorganics	111	803	0.40 U	0.40 U	0.80 U
D76138	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D76142	RFETS	Solidified Inorganics	111	800	0.24 U	0.24 J	0.48 U
D76143	RFETS	Solidified Inorganics	111	803	0.30 U	0.30 U	0.60 U
D76144	RFETS	Solidified Inorganics	111	800	0.67 U	0.67 U	1.33 U
D76146	RFETS	Solidified Inorganics	0	292	0.10 U	0.10 U	0.20 U
D76147	RFETS	Solidified Inorganics	111	803	0.10 U	0.10 U	0.10 U
D76182	RFETS	Solidified Inorganics	111	800	1.02 J	0.70 U	0.70 U
D76183	RFETS	Solidified Inorganics	111	800	0.13 U	0.23 J	0.44 J
D76185	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D76187	RFETS	Solidified Inorganics	111	803	0.50 U	0.50 U	1.00 U
D76189	RFETS	Solidified Inorganics	111	803	2.00 U	2.00 U	4.00 U
D76192	RFETS	Solidified Inorganics	111	803	0.10 U	0.10 U	0.20 U
D76194	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D76195	RFETS	Solidified Organics	112	801	480.00 U	480.00 U	480.00 U
D76196	RFETS	Solidified Organics	112	801	166.67 U	166.67 U	333.33 U
D76199	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D76200	RFETS	Solidified Organics	112	801	633.33 U	633.33 U	1266.6 U
D76203	RFETS	Solidified Organics	112	801	223.33 U	223.33 U	446.67 U
D76205	RFETS	Solidified Inorganics	111	800	0.10 U	0.10 U	0.20 U
D76206	RFETS	Solidified Inorganics	111	803	0.40 U	0.40 U	0.80 U
D76217	RFETS	Heterogeneous	116	833	1.00 U	1.00 U	2.00 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D76282	RFETS	Solidified Inorganics	111	800	11.33 U	11.33 U	22.67 U
D76283	RFETS	Solidified Organics	112	801	90.00 U	90.00 U	180.00 U
D76287	RFETS	Solidified Inorganics	111	800	5.33 U	5.33 U	10.67 U
D76293	RFETS	Heterogeneous	116	833	0.40 U	0.40 U	0.40 U
D76302	RFETS	Solidified Inorganics	111	800	3.00 U	3.00 U	6.00 U
D76303	RFETS	Solidified Inorganics	111	803	0.27 U	0.27 U	0.53 U
D76305	RFETS	Solidified Inorganics	111	800	12.00 U	12.00 U	24.00 U
D76306	RFETS	Heterogeneous	116	833	0.80 U	0.80 U	0.80 U
D76362	RFETS	Heterogeneous	116	833	6.67 U	6.67 U	13.33 U
D76406	RFETS	Heterogeneous	116	831	0.10 U	0.10 U	0.10 U
D76437	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D76443	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.33 J
D76452	RFETS	Heterogeneous	116	825	0.20 U	0.20 U	0.20 U
D76454	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.29 J
D76456	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.24 J
D76461	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.30 U
D76463	RFETS	Heterogeneous	116	825	0.30 U	0.30 U	0.30 U
D76470	RFETS	Solidified Inorganics	111	803	0.10 U	0.10 U	0.20 U
D76587	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.10 U
D76596	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.10 U
D76627	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.10 U
D76630	RFETS	Heterogeneous	116	825	0.10 U	0.10 U	0.18 J
D76635	RFETS	Heterogeneous	116	825	0.20 U	0.20 U	0.59 J
D76652	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.20 U
D76677	RFETS	Solidified Inorganics	111	800	2.40 U	2.40 U	2.40 U
D76710	RFETS	Heterogeneous	116	833	2.00 U	2.00 U	2.00 U
D76712	RFETS	Heterogeneous	116	833	0.30 U	0.30 U	0.30 U

Table C2-4
WIPP WASTE CHARACTERIZATION DATA
Gas Chromotography/Mass Spectrometry Results
(all data in ppmv)

Drum #	Site	Waste Matrix Code Group	TruCon Code	IDC Code	1,1,2,2-Tetra chloro ethane	1,3,5-Tri methyl benzene	1,2,4-Tri methyl benzene
D76715	RFETS	Heterogeneous	116	832	0.20 U	0.20 U	0.20 U
D76811	RFETS	Heterogeneous	116	832	0.20 U	0.20 U	0.20 U
D76908	RFETS	Heterogeneous	116	833	0.10 U	0.10 U	0.10 U
D76911	RFETS	Heterogeneous	116	832	0.20 U	0.20 U	0.40 U
D77088	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.40 U
D77227	RFETS	Heterogeneous	116	833	0.40 U	0.40 U	0.80 U
D77285	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D77621	RFETS	Heterogeneous	0	336	0.27 U	0.27 U	0.53 U
D80765	RFETS	Heterogeneous	116	833	0.20 U	0.20 U	0.20 U
D80772	RFETS	Heterogeneous	116	833	1.00 U	1.00 U	1.00 U
D80774	RFETS	Heterogeneous	116	833	3.10 U	3.10 U	3.10 U
D80776	RFETS	Heterogeneous	116	832	0.10 U	0.10 U	0.10 U

APPENDIX C3

TOTALS ANALYSIS VERSUS TOXICITY CHARACTERISTIC LEACHING PROCEDURE

APPENDIX C3

TOTALS ANALYSIS VERSUS TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Data from totals analyses (total organic compound analysis and total metals analysis) are compared to the Regulatory Toxicity Levels (RTL) expressed as total values. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a Toxicity Characteristic (TC) analyte that would give the regulatory weight/volume concentration (in the extract), assuming 100 percent analyte dissolution. Table C3-1 lists the TC levels expressed as RTL values for toxicity characteristic leaching procedure (TCLP) and totals analysis.

To demonstrate the appropriateness and conservatism of using totals analysis rather than the TCLP, consider the following example. Assume that a solid sample contains 100 milligrams per kilogram (mg/kg) of lead (Pb). The current TCLP regulatory level for Pb is 5 milligrams per liter (mg/L). This is comparable to a concentration of 5 mg/kg as demonstrated by the following calculation:

$$\frac{5 \text{ mg Pb}}{1 \text{ L solution}} \text{ X } \frac{1 \text{ L solution}}{1000 \text{ milliliters (ml) solution}} \text{ X } \frac{1 \text{ ml solution}}{1 \text{ gram (g) solution}} \text{ X } \frac{1000 \text{ g solution}}{1 \text{ kg solution}} = 5 \text{ mg Pb/kg}$$

When one compares the predicted results of totals analysis and TCLP analysis on the same sample, the following is observed:

Totals Analysis

Analyzing a sample by totals analysis yields a result equal to the actual contaminant concentration in the sample (assuming that the instrument and the methodology are 100 percent accurate).

Predicted result = 100 mg Pb/kg sample

TCLP Analysis

Assuming that 5 grams [g] (0.2 ounces (oz)) of sample is extracted and analyzed, 100 g of extraction fluid must be used (TCLP requires that the weight of extraction fluid must be 20 times the weight of the solid sample). Assuming that 100 percent of the lead in the sample is leachable, and as a result, is extracted into the solution where it will be detected in the analysis, the predicted concentration of the TCLP solution will be 5 mg/kg, as demonstrated in the following calculation:

$$\frac{5 \text{ g sample} \times \frac{100 \text{ mg Pb}}{1 \text{ kg sample}} \times \frac{1 \text{ kg sample}}{1000 \text{ g sample}}}{100 \text{ g solution} \times \frac{1 \text{ kg solution}}{1000 \text{ g solution}}} = 5 \text{ mg Pb/kg solution}$$

These calculations demonstrate that, by conservatively assuming a 100 percent leaching efficiency, a concentration of 100 mg/kg obtained by totals analysis is comparable to a concentration of 5 mg/kg (or 5 mg/L) using TCLP (See Figure C3-1). As such, by using a regulatory level of 100 mg/kg for totals analysis for lead (i.e., 20 times the TCLP level), the U.S. Department of Energy (DOE) is taking a conservative approach to the regulation, because a leaching efficiency of 100 percent is improbable. A comparison of the regulatory levels used for TCLP versus totals analysis for all TC analytes is presented in Table C3-1.

This approach was also addressed by the U.S. Environmental Protection Agency (EPA) in the preamble to a proposed rule issued in the Federal Register (FR) on October 24, 1991. In this preamble, the EPA stated the following:

> One could compare the numerical value of a potential TCLP standard to a theoretical maximum leaching level derived from a total constituent standard. One would have to assume that the entire amount of the toxicity characteristic constituent (as represented by the total constituent concentration at the level of the standard) would be extracted into an aqueous leaching medium. One would then have to account for the 20-fold dilution inherent in the TCLP analytical procedure. A theoretical maximum leaching value could, thus be calculated by dividing the numerical value of the total constituent treatment standard by a factor of 20 (56 FR 55167).

TABLE C3-1
RTLS FOR TCLP ANALYSIS VS. RTLS FOR TOTALS ANALYSIS

Analyte	TCLP RTL Value (mg/kg)	Totals RTL Value (mg/kg)[a]
Metals and Semi-VOCs[b]		
Arsenic	5.0	100
Barium	100.0	2000
Cadmium	1.0	20
Chromium	5.0	100
Cresols	200.0	4000
1,4-Dichlorobenzene	7.5	150
2,4-Dinitrotoluene	0.13	2.6
Hexachlorobenzene	0.13	2.6
Hexachloroethane	3.0	60
Lead	5.0	100
Mercury	0.2	4
Nitrobenzene	2.0	40
Pentachlorophenol	100.0	2000
Pyridine	5.0	100
Selenium	1.0	20
Silver	5.0	100
VOCs[c]		
Benzene	0.5	10
Carbon tetrachloride	0.5	10
Chlorobenzene	100.0	2000
Chloroform	6.0	120
1,2-Dichloroethane	0.5	10
1,1-Dichloroethylene	0.7	14
Methyl ethyl ketone	200.0	4000
Pyridine	5.0	100
Tetrachloroethylene	0.7	14
Trichloroethylene	0.5	10
Vinyl chloride	0.2	4

[a]The calculations assume 1) the maximum amount of material suggested by the TCLP is used, 2) wastes are 100 percent solid (no liquid fraction), 3) the maximum amount of extraction fluid is used, and 4) all analytes are 100 percent soluble in the extraction fluid.
[b]For metals and semi-VOCs, RTL value (mg/kg) = (TC level, mg/L) (volume of extraction fluid, 2L)/(weight of sample, 0.100 kg)
[c]For VOCs, RTL value (mg/kg) = (TC level, mg/L) (volume of extraction fluid, 0.5 L)/(weight of sample, 0.025 kg)

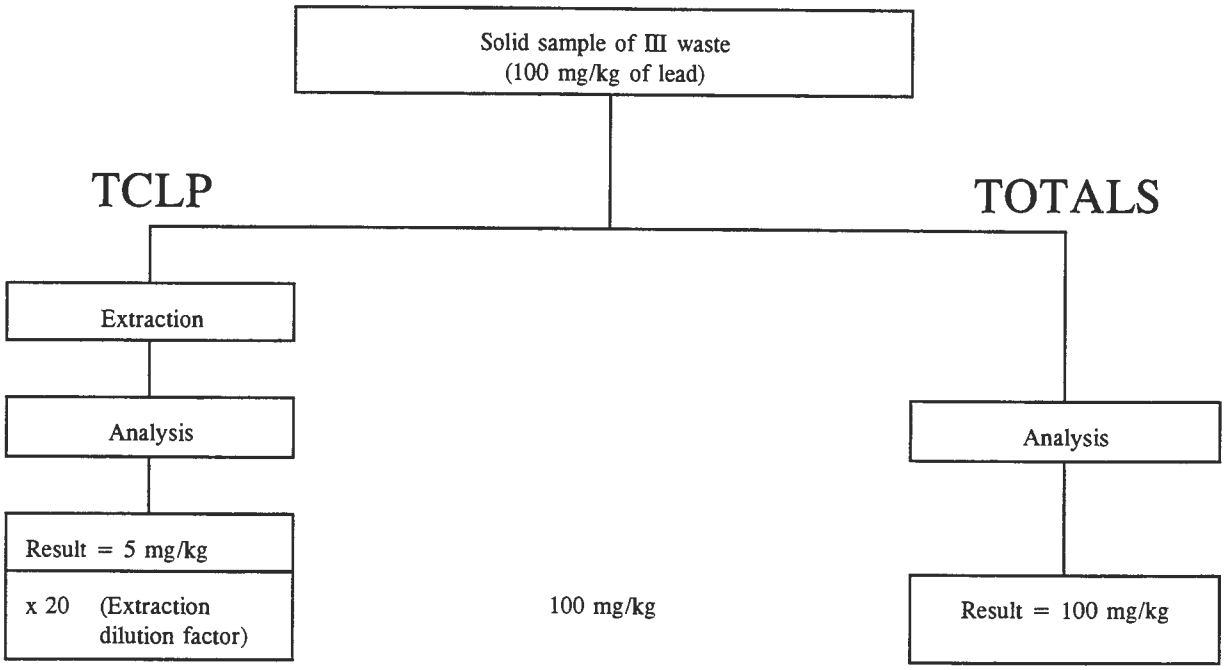

FIGURE C3-1
Comparison of TCLP and Totals Analyses for 100 mg/kg Lead Sample

APPENDIX C4
WASTE CHARACTERIZATION SAMPLING METHODS

APPENDIX C4
WASTE CHARACTERIZATION SAMPLING METHODS

C4-1 Headspace-Gas Sampling

C4-1a Method Requirements

All sampling must be accomplished within a radiation containment area (e.g., glovebox or hot/warm cell). The configuration of the containment area and remote-handling equipment at each sampling facility are expected to differ. A description of the containment area and remote-handling equipment must be provided in the site quality assurance project plan (QAPjP). Headspace-gas samples will be analyzed for the analytes listed in Table C8-2 of Appendix C8.

Sites may collect samples in SUMMA® canisters using the headspace gas sampling methods described in the Methods Manual. As an alternative, sites may use on-line integrated sampling/analysis systems. In this case, samples are immediately directed to an analytical instrument instead of being collected in SUMMA® canisters. The same sampling manifold and sampling heads are used with on-line integrated sampling/analysis systems and all of the requirements associated with sampling manifolds and sampling heads must be met. However, when using an on-line integrated sampling/analysis system, the sampling batch and analytical batch quality control (QC) samples are combined as on-line batch QC samples as outlined in Section C4-1b.

Manifold

This headspace gas sampling protocol employs a multiport manifold capable of collecting multiple simultaneous headspace samples for analysis and QC purposes. The manifold can be used to collect samples in SUMMA® canisters or as part of an on-line integrated sampling/analysis system. The sampling equipment must be leak checked and cleaned prior to first use and as needed thereafter. The manifold and sample canisters must be evacuated to 0.0039 inches (in.) (0.10 millimeters [mm]) mercury (Hg) prior to sample collection. Cleaned and evacuated sample canisters must be attached to the evacuated manifold before the manifold inlet valve is opened. The manifold inlet valve must be attached to a changeable filter connected to different sampling head(s), capable of punching through the metal lid of the drum or penetrating a carbon-composite filter.

The manifold must also be equipped with a purge assembly that allows applicable QC samples to be collected through the entire manifold, from the needle tip through all of the same manifold components that the drum headspace gas passes through. Field blanks shall be samples of room air collected in the sampling area in the immediate vicinity of the waste container to be sampled. If using SUMMA® canisters, field blanks are collected directly into the canister, without the use of the manifold.

The manifold, the associated sampling heads, and the headspace-gas sample volume requirements must be designed to ensure that a representative sample is collected. The

manifold internal volume must be calculated and documented in the field logbook. The total volume of headspace gases collected during each sampling operation can be determined by adding the combined volume of the canisters attached to the manifold to the internal volume of the manifold. When an estimate of the available headspace gas volume can be made, less than 10 percent of that volume should be withdrawn.

As illustrated in Figure C4-1, the sampling manifold must consist of a sample side and a standard side. The dotted line indicates how the sample side shall be connected to the standard side for cleaning and collecting equipment blanks and field reference standards. The sample side must consist of the following major components:

- An applicable sampling head that forms a leak-tight connection with the headspace sampling manifold.

- A flexible hose that allows movement of the sampling head from the purge assembly (standard side) to the waste container.

- A pressure sensor(s) that must be pneumatically connected to the manifold. This manifold pressure sensor(s) must be able to measure absolute pressure in the range from 0.002 in. (0.05 mm) Hg to 39.3 in. (1,000 mm) Hg. Resolution must be ±0.0002 in. (0.005 mm) Hg at 0.0020 in. (0.05 mm) of Hg. The manifold pressure sensor(s) must have an operating range from approximately 59°F (15°C) to 104°F (40°C).

- Ports for attaching sample canisters. If using canister-based sampling methods, a sufficient number of ports must be available to allow simultaneous collection of headspace-gas samples and duplicates for volatile organic compounds (VOC) analyses. If using an on-line integrated sampling/analysis system, only one port is necessary for the collection of comparison samples. Ports not occupied with sample canisters during cleaning or headspace-gas sampling activities require a plug to prevent ambient air from entering the system. In place of using plugs, sites may choose to install valves that can be closed to prevent intrusion of ambient air into the manifold. Ports must have VCR® fittings for connection to the sample canister(s) to prevent degradation of the fittings on the canisters and manifold.

- Sample canisters, as illustrated in Figure C4-2, that are leak-free, welded stainless steel pressure vessels, with a chromium-nickel oxide (Cr-NiO) SUMMA®-passivated interior surface, bellows valve, and a pressure/vacuum gauge. All sample canisters must have VCR® fittings for connection to sampling and analytical equipment. The pressure/vacuum gauge must be mounted on each canister. It must be helium-leak tested to 1.5×10^{-7} standard cubic centimeters per second (cc/s), have all stainless steel construction, and be capable of tolerating temperatures to 125°C. The gauge range must be capable of indicating leaks and sample collection.

drum lid. Equipment blanks and field-reference standards must be collected using a purge assembly equivalent to the standard side of the manifold described above. These samples must be collected from the needle tip through the same components (e.g., needle and filter) that the headspace-gas samples pass through.

The sample canisters, associated sampling heads, and the headspace-sample volume requirements ensure that a representative sample is collected. When an estimate of the available headspace-gas volume can be made, less than 10 percent of that volume should be withdrawn. A determination of the sampling head internal volume must be made and documented. The total volume of headspace gases collected during each headspace gas sampling operation can be determined by adding the volume of the sample canister(s) attached to the sampling head to the internal volume of the sampling head. Every effort must be made to minimize the internal volume of sampling heads.

Each sample canister used with the direct canister method must have a pressure/vacuum gauge capable of indicating leaks and sample collection. Canister gauges are intended to be gross leak-detection devices not vacuum-certification devices. If a canister pressure/vacuum gauge indicates an unexpected pressure change, determine if the change is a result of ambient temperature and pressure differences or a canister leak. Prior to sampling, canisters must be evacuated to 0.0039 in. (0.10 mm) Hg. This gauge must be helium-leak tested to 1.5×10^{-7} standard cc/s, have all stainless steel construction, and be capable of tolerating temperatures to 125°C.

The SUMMA® sample canisters must be used when sampling each drum. Three different sampling heads for attachment to the sample canister are described below. These heads must form a leak-tight connection with the canister and allow sampling through the drum-lid carbon-composite filter, or through the drum lid itself. Figure C4-3 illustrates the direct canister-sampling equipment.

Sampling Heads

A sample of the headspace gas directly under the drum lid must be collected from within the drum. Two methods, sampling through the carbon filter and sampling through the drum lid, have been developed for collecting a representative sample.

Sampling Through the Carbon Filter

To sample the drum-headspace gas through the drum's carbon-composite filter, a side-port needle (i.e., a hollow needle sealed at the tip with a small opening on its side close to the tip) must be pressed through the filter and into the headspace beneath the drum lid. This permits the gas to be drawn into the manifold or directly into the canister(s). This procedure is described in detail in the Methods Manual and is specific to a type of carbon-composite filter that permits insertion of the needle. To assure that the sample collected is representative, all of the general method requirements, sampling apparatus requirements, and QC requirements described in this section must be met in addition to the following requirements that are pertinent to drum headspace-gas sampling through the carbon filter:

- The lid of the drum's 90-mil poly liner must contain a hole for venting to the drum. If headspace-gas samples are collected prior to venting the 90-mil poly liner, a nonconformance report must be prepared, submitted, and resolved. Nonconformance procedures are outlined in Appendix C8 (Section C8-[illegible]).

- For sample collection, the drum's carbon-composite filter must be s[illegible]ed as specified in the Methods Manual, or equivalent, to prevent outside air from entering the drum and diluting and/or contaminating the sample.

The sampling head for collecting drum headspace by penetrating the carbon-composite filter must consist of a side-port needle, a filter to prevent particles from contaminating the gas sample, and an adapter to connect the two. To prevent cross contamination, the sampling head must be cleaned or replaced after sample collection, after field-reference standard collection, and after field-blank collection. The following requirements must also be met:

- The housing of the carbon-composite filter must allow insertion of the sampling needle through the filter element into the drum headspace.

- The side-port needle must be used t[illegible]educe the potential for plugging.

- The purge assembly must be modified for compatibility with the side-port needle.

Sampling Through the Drum Lid

Sampling through the drum lid must be performed when the drum's carbon-composite filter does not permit insertion of the side-port needle. To sample the drum headspace-gas through the drum lid, the lid must be breached using a sparkless punch. The punch must form an airtight seal between the drum lid and the manifold [illegible] direct canister. To assure that the sample collected is representative, all of the genera[illegible] method requirements, sampling apparatus requirements, and QC requirements specified in Methods Manual Procedures 110.1 through 110.4, as appropriate, must be met in addition to the following requirements:

- The seal between the drum lid and sampling head must be designed to minimize intrusion of ambient air [See Methods Manual Procedure 110.4, Section 8.0].

- All components of the drum-punch sampling system that come into contact with sample gases must be purged with humidified zero air, nitrogen, or helium prior to sample collection [See Methods Manual Procedure 110.4, Section 8.0].

- Equipment blanks and field reference standards must be collected through all the components of the punch that contact the headspace-gas sample.

- Pressure must be applied to the sparkless punch until the drum lid has been breached. Then the punch must be backed out to expose the headspace gas.

- Provisions must be made to relieve potential drum pressure increases during drum-punch operations; pressure increases may occur during sealing of the drum punch to the drum lid.

- The lid of the drum's 90-mil poly liner must contain a hole for venting to the drum. If headspace-gas samples are collected prior to venting the 90-mil poly liner, a nonconformance report must be prepared, submitted, and resolved.

- During sampling, the drum's carbon-composite filter, if present, must be sealed to prevent outside air from entering the drum.

Sampling through the drum lid must be accomplished using the drum punch described in the Methods Manual (Procedure 110.4), or an equivalent. The same type of sampling head as used for the 55-gallon (208-liter) poly bag sampling must be pneumatically connected to the drum punch to provide a seal between the drum lid and the manifold or direct canister. The following requirements must also be met:

- A flow-indicating device to verify excess flow of QC gases (for system purge) must be pneumatically connected downstream of the drum punch and operated in the same manner as the flow-indicating device described in the "Manifold" section. A flowrate of approximately one liter per minute for approximately three minutes is required.

- Equipment must be used adequately to secure the drum-punch sampling system to the drum lid.

- Provisions must be made to prevent the punch from rotating as it is pressed through the drum lid.

C4-1b <u>Quality Control</u>

For manifold and direct canister sampling systems, field QC samples must be collected on a per sampling batch basis. A sampling batch is a suite of samples collected consecutively using the same sampling equipment within a specific time period. A sampling batch can be up to 20 samples (excluding QC samples), all of which must be collected within 14 days of the first sample in the batch. For on-line integrated sampling/analysis systems, QC samples must be collected and analyzed on a per on-line batch basis. An on-line batch is the number of headspace gas samples collected and analyzed within a 12-hour period using the same on-line integrated analysis system. Table C4-2 provides a summary of field QC sample collection requirements. Table C4-3 provides a summary of QC sample acceptance criteria.

For on-line integrated sampling analysis systems, the on-line batch QC samples serve as combined sampling batch/analytical batch QC samples as follows:

- The on-line blank replaces the equipment blank and laboratory blank

- The on-line control sample replaces the field reference standard and laboratory control sample

- The on-line duplicate replaces the field duplicate and laboratory duplicate

The acceptance criteria for on-line batch QC samples are the same as for the sampling batch and analytical batch QC samples they replace. Acceptance criteria are shown in Table C4-3. A separate field blank must still be collected and analyzed for each on-line batch. However, if the results of a field blank collected through the sampling manifold meets the acceptance criterion, a separate on-line blank need not be collected and analyzed.

The site project Quality Assurance (QA) officer shall have the responsibility to monitor and document field QC sample results and fill out a nonconformance report if acceptance criteria are not met. The site project manager shall have the responsibility to ensure appropriate corrective action is taken if acceptance criteria are not met.

Field Blanks

Field blanks must be collected to evaluate background levels of program-required analytes. Field blanks must be collected prior to sample collection, and at a frequency of one per sampling batch. The site project manager shall use the field blank data to assess impacts of ambient contamination, if any, on the sample results. A nonconformance report (Section C8-13) must be initiated and resolved if the final reported QC sample results do not meet the acceptance criteria.

Equipment Blanks

Equipment blanks must be collected to assess cleanliness prior to first use of all sampling equipment. After the initial cleanliness check, equipment blanks collected through the manifold must be collected at a frequency of one per sampling batch for VOC analysis. If the direct canister method is used, field blanks may be used in lieu of equipment blanks. The site project manager shall use the equipment blank data to assess impacts of potentially contaminated sampling equipment on the sample results. Equipment blank results determined by gas chromatography/mass spectrometry and gas chromatography/flame ionization detection shall be acceptable if the concentration of each VOC analyte is less than three times the method detection limit (MDL) listed in Table C8-2 in Appendix C8. Equipment blank results determined by FTIRS shall be acceptable if the concentration of each VOC analyte is less than the program required quantitation limit and listed in Table C8-2.

Field Reference Standards

Field reference standards shall be used to assess the accuracy with which the sampling equipment collects VOC samples into SUMMA® canisters prior to first use of the sampling equipment. Field reference standards must contain a minimum of six of the analytes listed in Table C8-2 in Appendix C8 at concentrations within a range of 0 to 100 ppmv. Field reference standards must have a known valid relationship to a nationally recognized standard (e.g., NIST). If commercial gases are used, a Certificate of Analysis from the manufacturer documenting

traceability is required. Commercial stock gases must not be used beyond their manufacturer-specified shelf life. After the initial accuracy check, field reference standards collected through the manifold must be collected at a frequency of one per sampling batch and submitted blind to the analytical laboratory. For the direct canister method, field reference standard collection may be discontinued if the field reference standard results demonstrate the quality assurance objectives (QAO) for accuracy specified in Appendix C8. Field reference standard results shall be acceptable if the accuracy is 70 to 130 percent recovery.

Field Duplicates

Field duplicate samples must be collected simultaneously and in accordance with Table C4-1 to assess the precision with which the sampling procedure can collect samples into SUMMA® canisters. Field duplicate results shall be acceptable if the relative percent difference is less than or equal to 25.

C4-1c Equipment Testing, Inspection and Maintenance

All sampling equipment components that come into contact with headspace sample gases must be constructed of relatively inert materials such as stainless steel or Teflon®. A passivated interior surface on the stainless steel components is recommended.

To minimize the potential for cross contamination of samples, the headspace sampling manifold and sample canisters must be properly cleaned and leak-checked prior to headspace gas sampling. Procedures for cleaning and preparing the manifold and sample canisters are provided in the Methods Manual (Procedures 110.1 and 110.2). Cleaning requirements are presented below.

Headspace Gas Sample Canister Cleaning

SUMMA® canisters used in these methods must be subjected to a rigorous cleaning and certification procedure prior to use in the collection of any samples. Guidance for the development of this procedure has been derived from Method TO-14 (EPA 1988a) and can be found in the Methods Manual (Procedure 210.1). Specific details must be provided in laboratory standard operating procedures (SOPs) for the cleaning and certification of canisters.

Canisters must be cleaned and certified on an equipment cleaning batch basis. An equipment cleaning batch is any number of canisters cleaned together at one time using the same cleaning method. A cleaning system, capable of processing multiple canisters at a time, composed of an oven (optional) and a cryogenic trap vacuum manifold must be used to clean SUMMA® canisters. Prior to cleaning, a 24-hour leak test must be performed on all canisters. For a positive pressure check, a canister passes if the pressure does not change by more than ± 2 psig in 24 hours. Any canister that fails must be checked for leaks, repaired, and reprocessed. One canister per equipment cleaning batch must be filled with humid zero air or humid high purity nitrogen and analyzed for VOCs. The equipment cleaning batch of canisters shall be considered clean if there are no VOCs above three times the MDLs listed in Table C8-2 of Appendix C8. After the canisters have been certified for leak-tightness and free of background contamination, they must be evacuated to 0.0039 in. (0.10 mm) Hg or less for storage prior to shipment. The

laboratory responsible for canister cleaning and certification shall maintain canister certification documentation and initiate the canister tags as described in Section 6.0 of the Transuranic Waste Characterization Quality Assurance Program Plan (QAPP).

Sampling Equipment Initial Cleaning and Leak Check

The surfaces of all headspace gas sampling equipment components that will come into contact with headspace gas must be thoroughly inspected and cleaned prior to assembly, in accordance with Methods Manual Procedures 110.1 and 110.2, or equivalent. The manifold and associated sampling heads must be purged with humidified zero air, nitrogen, or helium, and leak checked after assembly. This cleaning must be repeated if the manifold and/or associated sampling heads are contaminated to the extent that the routine system cleaning is inadequate.

Sampling Equipment Routine Cleaning and Leak Check

The manifold and associated sampling heads which are reused must be cleaned and checked for leaks in accordance with the cleaning and leak check procedures described in Procedures 110.1 and 110.2 of the Methods Manual, or equivalent. The procedures must be conducted after headspace gas and field duplicate collection; after field blank collection, if the field blank is collected through the manifold; and after the additional cleaning required for field reference standard collection has been completed. The protocol for routine manifold cleaning and leak check requires that sample canisters be attached to the canister ports, or that the ports be capped or closed by valves, and requires that the sampling head be attached to the purge assembly. Humidified zero air, nitrogen, or helium, regulated through the purge assembly, must then be swept through the sample side of the sampling system.

VOCs must be removed from the internal surfaces of the headspace sampling manifold to levels that are less than three times the MDLs of the analytes listed in Table C8-2 of Appendix C8, as determined by analysis of an equipment blank or the OVA. This is achieved by sweeping the sample side of the sampling system. It is recommended that the headspace sampling manifold be heated and periodically evacuated and flushed with humidified zero air, nitrogen, or helium. When not in use, the manifold must be demonstrated clean before storage with a positive pressure of high purity gas (i.e., zero air, nitrogen, or helium) in both the standard and sample sides.

Sampling must be suspended and corrective actions must be taken when the analysis of an equipment blank indicates these limits have been exceeded. The site project manager must ensure that corrective action has been taken prior to resumption of sampling.

Manifold Cleaning After Field Reference Standard Collection

The sampling system must be specially cleaned after a field reference standard has been collected, because the field reference standard gases contaminate the standard side of the headspace sampling manifold when they are regulated through the purge assembly. This cleaning requires the installation of a gas-tight connector in place of the sampling head, between the flexible hose and the purge assembly. This configuration allows both the sample and standard sides of the sampling system to be flushed (evacuated and pressurized) with humidified

zero air, nitrogen, or helium which, combined with heating the pneumatic lines, should sweep and adequately clean the system's internal surfaces. After this protocol has been completed and prior to collecting another sample, the routine system cleaning and leak check (see previous section) must also be performed.

Sampling Head Cleaning

To prevent cross contamination, the needle, adapters, and filter of the sampling heads must be cleaned in accordance with the cleaning procedures described in Procedures 110.1 and 110.2 of the Methods Manual, or equivalent. After sample collection, a sampling head must be disposed of or cleaned in accordance with the Methods Manual procedures, or equivalent, prior to reuse. As a further QC measure, the needle and filter, after cleaning, should be purged with zero air, nitrogen, or helium and capped for storage to prevent sample contamination by VOCs potentially present in ambient air.

C4-1d Equipment Calibration and Frequency

The manifold pressure sensor must be certified prior to initial use, then annually, using NIST traceable, or equivalent, standards. If necessary, the pressure indicated by the pressure sensor(s) must be temperature compensated. The ambient air temperature sensor, if present, must be certified prior to initial use, then annually, to NIST traceable, or equivalent, temperature standards.

The OVA must be calibrated once per day, prior to first use, or as necessary according to the manufacturer's specifications. Calibration gases must be certified to contain known analytes at known concentrations. The balance of the OVA calibration gas must be consistent with the manifold purge gas when the OVA is used (i.e., zero air, nitrogen, or helium).

C4-2 Sampling of Homogenous Solids and Soil/Gravel

C4-2a Method Requirements

The methods used to collect samples of transuranic (TRU) waste, classified as homogenous solids and soil/gravel from waste containers, must be such that the samples are representative of the waste from which they were taken. To minimize the quantity of investigation-derived waste, laboratories conducting the analytical work may require no more sample than is required for the analysis, based on the analytical methods. Therefore, sampling must be conducted to collect samples in accordance with the QAO specifications as described below.

Core Collection

Coring tools must be used to collect cores of homogenous solids and soil/gravel from waste containers, when possible, in a manner that minimizes disturbance to the core. A rotational coring tool (i.e., a tool that is rotated longitudinally), similar to a drill bit, to cut, lift the waste cuttings, and collect a core from the bore hole, must be used to collect sample cores from containers of the waste. For homogenous solids and soil/gravel that are relatively soft, nonrotational coring tools may be used in lieu of a rotational coring tool.

To provide a basis for describing the requirements for core collection, diagrams of a rotational coring tool (i.e., a light weight auger) and a nonrotational coring tool (i.e., a thin-walled sampler) are provided in Figures C4-4 and C4-5, respectively. Each has been tested for its ability to collect a vertical core of simulated solidified waste contained in 55-gal (208-L) drums and 1-gal (3.8-L) poly bottles (EG&G 1994). The nonrotational coring tool has demonstrated core recoveries greater than 88 percent for soft simulated wastes. The rotational coring tool has demonstrated core recoveries greater than 75 percent for soft simulated wastes and greater than 94 percent for hard simulated wastes.

The following requirements apply to the use of coring tools:

- Each coring tool must contain a removable tube (liner) that is constructed of fairly rigid material unlikely to affect the composition and/or concentrations of target analytes in the sample core. Materials that are acceptable for use for coring device sleeves are polycarbonate, teflon, or glass for most samples, and stainless steel or brass if samples are not to be analyzed for metals (Methods Manual Procedure 120.1). Site QAPjPs must document that analytes of concern are not likely to be present in liner material. Sites must document that the materials are unlikely to affect sample results through the collection and analysis of equipment prior to first use as specified in the 'Equipment Blanks' section of this appendix. Liner outer diameter is recommended to be no more than 2 in. and no less than one in. Liner wall thickness is recommended to be no greater than 1/16 in. Before use, the liner must be cleaned in accordance the requirements in Section C4-2b. The liner must fit flush with the inner wall of the coring tool and must be of sufficient length to hold a core that is representative of the waste along the entire depth of the waste. The liner material must have sufficient transparency to allow visual examination of the core after sampling. If sub-sampling is not conducted immediately after core collection and liner extrusion, then end caps constructed of material unlikely to affect the composition and/or concentrations of target analytes in the core (e.g., Teflon®) must be placed over the ends of the liner. End caps must fit tightly to the ends of the liner.

- A spring retainer, similar to that illustrated in Figures C4-4 and C4-5, must be used with each coring tool when the physical properties of the waste are such that the waste may fall out of the coring tool's liner during sampling activities. The spring retainer must be constructed of relatively inert material (e.g., stainless steel or Teflon®) and its inner diameter must not be less than the inner diameter of the liner. Before use, spring retainers must be cleaned in accordance with the requirements in Section C4-2b.

- Coring tools must have an air-lock mechanism that opens to allow air inside the liners to escape as the tool is pressed into the waste (e.g., ball check valve). This air-lock mechanism must also close when the core is removed from the waste container.

- After disassembling the coring tool, a device (extruder) to forcefully extrude the liner from the coring tool must be used if the liner does not slide freely. All

surfaces of the extruder that may come into contact with the core must be cleaned in accordance with the requirements in Section C4-2(b) prior to use.

- Coring tools must be of sufficient length to hold the liner and must be constructed to allow placement of the liner leading edge as close as possible to the coring tools leading edge.

- All surfaces of the coring tool that have the potential to contact the sample core must be cleaned in accordance with the requirements in Section C4-2(b) prior to use.

- The leading edge of the coring tools must be sharpened and tapered to a diameter equivalent to, or slightly smaller than, the inner diameter of the liner. Based on tests conducted with the coring tools described in the Methods Manual, a diameter slightly smaller (e.g., 1/10 in.) has demonstrated a reduction in the drag of the homogenous solids and soil/gravel against the internal surfaces of the liner, thereby enhancing sample recovery.

- Rotational coring tools must have a mechanism to minimize the rotation of the liner inside the coring tool during coring activities, thereby minimizing physical disturbance to the core.

- Rotational coring must be conducted in a manner that minimizes transfer of frictional heat to the core, thereby minimizing potential loss of VOCs.

- Nonrotational coring tools must be designed such that the tool's kerf width is minimized. Kerf width is defined as one-half of the difference between the outer diameter of the tool and the inner diameter of the tool's inlet.

Sample Collection

Sampling must be conducted in accordance with the following requirements:

- Sampling must be conducted as soon as possible after core collection. If a substantial delay (i.e., more than 60 minutes) is expected between core collection and sampling, the core must remain in the liner and the liner must be capped at each end. If the liner containing the core is not extruded from the coring tool and capped, then two alternatives are permissible: 1) the liner must be left in the coring tool and the coring tool must be capped at each end, or 2) the coring tool must remain in the waste container with the air-lock mechanism attached.

- Samples of homogenous solids and soil/gravel for VOC analyses must be collected prior to extruding the core from the liner. The sampling location must be randomly selected along the long axis of the liner and access to the waste must be gained by making a perpendicular cut through the liner and the core. Sites must develop procedures to select, and document the selection, of random sampling locations. True random sampling involves the proper use of random

numbers for identifying sampling locations. A sampling device such as the metal coring cylinder described in ASTM Designation: 4547-91 (ASTM 1991a), or modified disposable syringe described in Procedure 120.1 of the Methods Manual, or equivalent, must be immediately used to collect a 15-gram sample once the core has been exposed to air. Immediately after sample collection, the sample must be extruded into a 40-mL Volatile Organics Analysis (VOA) vial, the top rim of the vial visually inspected and wiped clean of any waste residue, and the vial cap secured. Sample handling requirements are outlined in Table C4-4. Additional guidance for this type of sampling can be found in *Soil Sampling and Analysis for Volatile Organic Compounds* (EPA, 1991).

- Samples of the homogenous solids and soil/gravel for semi-volatile organic compound, polychlorinated biphenyls, and metals analyses must be collected. These samples may be collected from the same location and in the same manner as the sample(s) collected for VOC analysis, or they may be collected by splitting or compositing a representative subsection of the core. The representative subsection is chosen by randomly selecting a location along the core. Sites must develop procedures to select, and document the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. Guidance for splitting and compositing solid materials can be found in "Standard Practice for Reducing Field Samples of Aggregate to Testing Size" (ASTM, 1987). All surfaces of the sampling tools that have the potential to come into contact with the sample must be constructed of materials unlikely to affect the composition or concentrations of target analytes in the waste (e.g., Teflon®). Sample sizes and handling requirements are outlined in Table C4-4.

C4-2b Quality Control

QC requirements for sampling of homogenous solids and soil/gravel include collection of collocated cores to determine precision; equipment blanks to verify cleanliness of the coring tools and sampling equipment; and analysis of reagent blanks to ensure reagents, such as deionized or high pressure liquid chromatography (HPLC) water, are of sufficient quality. Coring and sampling of homogenous solids and soil/gravel must comply, at minimum, with the following QC requirements.

Co-located Cores

In accordance with the requirement to collect field duplicates required by Environmental Protection Agency (EPA) methods found in SW-846, co-located cores must be collected to determine the combined precision of the coring and sampling procedures. The co-located core methodology is a duplicate sample collection methodology intended to collect samples from approximately the same location within the drum. Cores must be collected side by side as close as feasible to one another, handled in the same manner, visually inspected through the transparent liner, and sampled in the same manner at the same randomly selected sample location. If the visual examination detects inconsistencies such as color, texture, or waste type in the waste at the sample location, another sampling location may be randomly selected, or the

cores may be invalidated and co-located cores may again be collected. Co-located cores must be collected at a frequency of one per sampling batch. A sampling batch is a suite of homogenous solids and soil/gravel samples collected consecutively using the same sampling equipment within a specific time period. A sampling batch can be up to 20 samples (excluding field QC samples), all of which must be collected within 14 days of the first sample in the batch. Because of the normally slow rate of core collection (1-2 cores per day), daily collection of field QC samples would result in numerous QC samples being collected for each field sample. This is inappropriate for sampling operations and is unnecessary for QC purposes. The collection of field QC samples on a "per sampling batch" basis provides adequate control for sampling operations.

Equipment Blanks

In accordance with SW-846, equipment blanks must be collected from fully assembled coring tools prior to first use at a frequency of one per equipment cleaning batch. An equipment cleaning batch is the number of sampling equipment items cleaned together at one time using the same cleaning method. The equipment blank must be collected from the fully assembled coring tool, in the area where the coring tools are cleaned, prior to covering with protective wrapping and storage. The equipment blank must be collected by pouring clean water (e.g., deionized water, HPLC water) down the inside of the liners of the assembled coring tool. The water must be collected in a clean sample container placed at the leading edge of the coring tool and analyzed for the analytes listed in Tables C8-4, C8-6, and C8-9 of Appendix C8. The results of the equipment blank will be considered acceptable if the analysis indicates no analyte at a concentration greater than three times the MDLs listed in Tables C8-4 and C8-6 or in the Program Required Detection Limits (PRDL) in Table C8-9 of Appendix C8. If analytes are detected at concentrations greater than three times the MDLs, then the associated equipment cleaning batch of coring tools must be cleaned again and another equipment blank collected.

Equipment blanks must be collected from liners that are cleaned separately from the coring tools. These equipment blanks must be collected at a frequency of one per equipment cleaning batch. The equipment blanks must be collected by randomly selecting a liner from the equipment cleaning batch, pouring clean water (e.g., deionized water or HPLC water) across its internal surface, collecting the water in a clean sample container, and analyzing the water for the analytes listed in Tables C8-4, C8-6, and the PRDLs in C8-9 of Appendix C8. The results of the equipment blank analysis will be considered acceptable if the results indicate no analyte at a concentration greater than three times the MDLs listed in Tables C8-4, C8-6, or C8-9 of Appendix C8. If analytes are detected at concentrations greater than three times the MDLs (or PRDLs for metals), then the associated equipment cleaning batch of liners must be cleaned again and another equipment blank collected.

Sampling equipment (e.g., bowls, spoons, chisel, VOC sub-sampler) must also be cleaned. Equipment blanks must be collected for the sampling equipment at a frequency of one per equipment cleaning batch. After the sampling equipment has been cleaned, one item from the equipment cleaning batch is randomly selected, water (e.g., deionized water, HPLC water) is passed over its surface, collected in a clean container, and analyzed for the analytes listed in Tables C8-4, C8-6, and C8-9 of Appendix C8. The results of the equipment blank will be considered acceptable if the results indicate no analyte present at a concentration greater than

three times the MDLs listed in Tables C8-4 and C8-6 and in the PRDLs in C8-9 of Appendix C8. If analytes are detected at concentrations greater than three times the MDLs (or PRDLs for metals), then the associated equipment cleaning batch of sampling equipment must be cleaned again and another equipment blank collected.

The results of equipment blanks must be traceable to the items in the equipment cleaning batch that the equipment blank represents. It is recommended that the equipment blank results for the coring tools, liners, and sampling equipment be reviewed prior to use. A sufficient quantity of these items should be maintained in storage to prevent disruption of sampling operations.

A site may choose to discard liners and sampling tools after one use. In this instance, cleaning and equipment blank collection is not required.

Coring Tool and Sampling Equipment Cleaning

Coring tools and sampling equipment must be cleaned in accordance with the following requirements:

- All surfaces of coring tools and sampling equipment that will come into contact with the core and the samples must be clean prior to use. All items of sampling equipment must be cleaned in the same manner. Immediately following cleaning, coring tools and sampling equipment must be assembled and sealed inside clean protective wrapping.

- Each coring tool must have a unique identification number. Each number must be referenced to the waste container on which it was used. This information must be recorded in the field records. One coring tool from the equipment cleaning batch must be tested for cleanliness in accordance with the requirements specified above. The identification number of the coring tool from which the equipment blank was collected must be recorded in the field records. The results of the equipment blank analysis for the equipment cleaning batch in which each coring tool was cleaned must be submitted to the sampling facility with the identification numbers of all coring tools in the equipment cleaning batch.

- Sample containers must be cleaned in accordance with the *Specifications and Guidance for Obtaining Contaminant-Free Sample Containers* (EPA, 1992).

C4-2c Equipment Testing, Inspection and Maintenance

Prior to initiation of coring activities, coring tools must be tested in accordance with manufacturer specifications to ensure operation within the manufacturer's tolerance limits. Other specifications specific to the sampling operations (e.g., operation of containment structure and safety systems) should also be tested and verified as operating properly prior to initiating coring activities. Coring tools must be assembled, including liners, and tested. Air-lock mechanisms and rotation mechanisms must be inspected for free movement of critical parts. Coring tools found to be malfunctioning must be repaired or replaced prior to use.

Coring tools and sample collection equipment must be maintained in accordance with manufacturer's specifications. Clean coring tools and sampling equipment must be sealed inside clean protective wrapping and maintained in a clean storage area prior to use. Sampling equipment must be properly maintained to avoid contamination. A sufficient supply of spare parts should be maintained to prevent delays in sampling activities due to equipment down time. Records of equipment maintenance and repair must be maintained in the field records in accordance with site SOPs.

Inspection of sampling equipment and work areas shall include the following:

- Sample collection equipment in the immediate area of sample collection must be inspected daily for cleanliness. Visible contamination on any equipment (e.g., waste on floor of sampling area, hydraulic fluid from hoses) that has the potential to contaminate a waste core or waste sample must be thoroughly cleaned upon its discovery.

- The waste coring and sampling work areas must be maintained in clean condition to minimize the potential for cross contamination between cores and samples.

- Expendable equipment (e.g., plastic sheeting, plastic gloves) must be visually inspected for cleanliness prior to use and properly discarded after each sample.

- Prior to removal of the protective wrapping from a coring tool designated for use, the condition of the protective wrapping must be visually assessed. Coring tools with torn protective wrapping should be returned for cleaning. Coring tools visibly contaminated after the protective wrapping has been removed must not be used and must be returned for cleaning or properly discarded.

- Sampling equipment must be visually inspected prior to use. All sampling equipment that comes into contact with waste samples must be stored in protective wrapping until use. Prior to removal of the protective wrapping from sampling equipment, the condition of the protective wrapping must be visually assessed. Sampling equipment with torn protective wrapping should be discarded or returned for cleaning. Sampling equipment visibly contaminated after the protective wrapping has been removed must not be used and must be returned for cleaning or properly discarded.

C4-2d Equipment Calibration and Frequency

The scale used for weighing sub-samples must be calibrated as necessary to maintain its operation within manufacturer's specification, and after repairs and routine maintenance. Weights used for calibration must be traceable to a nationally recognized standard. Calibration records must be maintained in the field records.

C4-3 Radiography

C4-3a Methods Requirements

Radiography has been developed by the Department of Energy (DOE) specifically to aid in the examination and identification of containerized waste. There is no equivalent or associated method found in EPA sampling and analysis guidance documents. All activities required to achieve the radiography objectives must be described in site QAPjPs and SOPs.

A radiography system normally consists of an X-ray-producing device, an imaging system, an enclosure for radiation protection, a waste container handling system, an audio/video recording system, and an operator control and data acquisition station. Although these six components are required, it is expected there will be some variation within a given component between sites. The X-ray-producing device must have controls which allow the operator to vary the voltage, thereby controlling image quality. It should be possible to vary the voltage, typically between 150 to 400 kilovolts (k), to provide an optimum degree of penetration through the waste. For example, high-density material should be examined with the X-ray device set on the maximum voltage. This ensures maximum penetration through the waste container. Low-density material should be examined at lower voltage settings to improve contrast and image definition. The imaging system typically utilizes a fluorescent screen and a low-light television camera.

To perform radiography, the waste container is scanned while the operator views the television screen. An audio/videotape is made of the waste container scan and is maintained as a permanent record. A radiography data form is also used to document the matrix parameter category and estimated waste material parameter weight of the waste. The estimated waste material parameter weights should be determined by compiling an inventory of waste items, residual materials, and packaging materials. The items on this inventory should be sorted by waste material parameter and combined with a standard weight look-up table to provide an estimate of waste material parameter weights.

C4-3b Quality Control

The radiography system involves qualitative and semiquantitative evaluations of visual displays. Operator training and experience are the most important considerations for assuring quality controls in regard to the operation of the radiography system and for interpretation and disposition of radiography results. Only trained personnel must be allowed to operate radiography equipment.

Standardized training requirements for radiography operators must be based upon existing industry standard training requirements and must comply with the training and qualification requirements of NQA-1, Element 2, except for Supplement 2S-2 (ASME, 1994). Supplement 2S-2 is associated with radiography used in verifying safety-related parameters, such as welding, where quantitative comparisons can be utilized. As such, it is not applicable to waste management operations and not considered necessary or appropriate for training radiography operators involved in TRU waste characterization activities.

Each site must develop a training program that provides radiography operators with both formal and on-the-job (OJT) training. Radiography operators must be instructed in the specific waste generating practices, typical packaging configurations, and associated waste material parameters expected to be found in each matrix parameter category at the site. The OJT and apprenticeship must be conducted by an experienced, qualified radiography operator prior to qualification of the training candidate. The training programs will be site-specific due to differences in equipment, waste configurations, and the level of waste characterization efforts. For example, certain sites use digital radiography equipment, which is more sensitive than real-time radiography equipment. In addition, the particular physical forms and packaging configurations at each site will vary; therefore, radiography operators must be trained on the types of waste that are generated, stored, and/or characterized at that particular site.

Although each site must develop its own training program, all of the radiography QC requirements specified in this Waste Analysis Plan (WAP) and the Methods Manual must be incorporated into the training programs and radiography operations. In this way data quality and comparability will not be affected.

Radiography training programs will be the subject of the Generator/Storage Site Waste Screening and Acceptance Audit Program (Appendix C11).

Although the site-specific training programs will vary to some degree, each program will contain the following required elements based on NQA-1 requirements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Basic Principles of Radiography
- Radiographic Image Quality
- Radiographic Scanning Techniques
- Application Techniques
- Radiography of Waste Forms
- Standards, Codes, and Procedures for Radiography
- Site-Specific Instruction

On-the-Job Training

- System Operation
- Identification of Packaging Configurations
- Identification of Waste Material Parameters
- Weight and Volume Estimation
- Identification of Prohibited Items

A radiography test drum will include items common to the waste streams to be generated/stored at the generator/storage site. The test drums must be divided into layers with varying packing densities or different drums may be used to represent different situations that may occur during

radiography examination at the site. The following is a list of required elements of a radiography test drum:

- Aerosol can with puncture
- Horsetail bag
- Pair of coveralls
- Empty bottle
- Irregular shaped pieces of wood
- Empty one gallon paint can
- Full container
- Aerosol can with fluid
- One gallon bottle with three tablespoons of fluid
- One gallon bottle with one cup of fluid (upside down)
- Leaded glove or leaded apron
- Wrench

These items must be successfully identified by the operator as part of the qualification process. Qualification of radiography operators must, at a minimum, encompass the following requirements:

- Successfully pass a comprehensive exam based upon training enabling objectives. This exam will be reviewed as part of the Generator/Storage Site Waste Screening and Acceptance Audit Program (Appendix C11)

- Perform practical capability demonstration in the presence of appointed site radiography subject matter expert. This person is an experienced radiography operator who is qualified as an OJT trainer.

Requalification of operators must be based upon evidence of continued satisfactory performance (primarily audio/videotape reviews) and must be done at least every two years. Unsatisfactory performance will result in disqualification. Unsatisfactory performance is defined as the misidentification of a prohibited item in a training drum or a score of less than 80% on the comprehensive exam. Retraining and demonstration of satisfactory performance are required before an operator is again allowed to operate the radiography system.

A training drum with various container sizes must be periodically scanned by each operator. The videotape must then be reviewed by a supervisor to ensure that operators' interpretations remain consistent and accurate. Imaging system characteristics must be verified on a routine basis.

Independent replicate scans and replicate observations of the video output of the radiography process must be performed under uniform conditions and procedures. Independent replicate scans must be performed on one waste container per day or once per testing batch, whichever is less frequent. Independent observations of one scan (not the replicate scan) must also be made once per day or once per testing batch, whichever is less frequent, by a qualified radiography operator other than the individual who performed the first examination. A testing batch is a suite of waste containers undergoing radiography using the same testing equipment. A testing batch can be up to 20 waste containers without regard to waste matrix.

Oversight functions include periodic audio/video tape reviews of accepted waste containers and must be performed by qualified radiography personnel other than the operator who dispositioned the waste container. The results of this verification must be available to the radiography operator. The site project QA officer shall be responsible for monitoring the quality of the radiography data and calling for corrective action, when necessary.

Visual Examination

As an additional QC check, the radiography results must be verified directly by visual examination of the waste container contents. Visual examination must be performed on a statistically determined portion of waste containers to verify the results of radiography. This verification must include the matrix parameter category and waste material parameter weights. The verification must be performed through a comparison of radiography and visual examination results. The results of the visual examination must be transmitted to the radiography facility.

The visual examination must consist of a semi-quantitative and/or qualitative evaluation of the waste container contents, and must be recorded on audio/videotape. The visual examination program has been developed by the DOE to provide an acceptable level of confidence in radiography. There is no equivalent method found in EPA sampling and analysis guidance documents. A detailed procedure that meets the requirements of this method can be found in the Methods Manual.

Standardized training for visual inspection must be developed to include both formal classroom and OJT. Visual inspectors must be instructed in the specific waste generating processes, typical packaging configurations, and expected waste material parameters expected to be found in each matrix parameter category at the site. The OJT and apprenticeship must be conducted by an operator experienced and qualified in visual examination prior to qualification of the candidate. The training must be site specific to include the various waste configurations generated/stored at the site. For example, the particular physical forms and packaging configurations at each site will vary so operators must be trained on types of waste that are generated, stored, and/or characterized at that particular site. Visual examination personnel must be requalified once every two years.

Although site-specific training programs will vary to some degree, each program will contain the following required elements based on NQA-1 requirements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Application Techniques
- Site-Specific Instruction

On-the-Job Training

- Identification of Packaging Configurations
- Identification of Waste Material Parameters

- Weight and Volume Estimation
- Identification of Prohibited Items

Each visual examination facility must designate a visual examination expert. The visual examination expert must be familiar with the waste generating processes that have taken place at that site and also be familiar with all of the types of waste being characterized at that site. The visual examination expert shall be responsible for the overall direction and implementation of the visual examination at that facility. Site QAPjPs must specify the selection, qualification, and training requirements of the visual examination expert.

Figure C4-6 illustrates the overall programmatic approach to the visual examination of waste. If the waste is homogeneous, the expert may decide that a limited visual examination involving a confirmation of the radiography data is appropriate. If the waste is heterogeneous, the expert may decide a full visual examination by opening bags and segregating waste is warranted. Various degrees of segregation are possible based on the expert's judgment and availability of acceptable knowledge data. Site QAPjPs must specify decision-making criteria for the visual examination expert. In all cases, SOPs must be developed to support the visual examination process, and the basis for the expert's decisions must be documented.

A description of the waste container contents must be recorded on a data form as implemented in the site QAPjP. The description can be brief, but it must clearly identify the appropriate waste matrix parameters and provide enough information to estimate weights of waste material parameters. In cases where bags are not opened, a brief written description of the contents of the bags must contain an estimate of the amount of each waste type in the bags. The written records of visual examination must be supplemented with the audio/video recording.

C4-4 Sample Custody of Samples

Chain-of-Custody on field samples (including field QC samples) will be initiated immediately after sample collection or preparation. Sample custody will be maintained until the associated analyses are completed and the data have been validated at the project level. Sample custody will be maintained until the sample is expended or until the sample is removed from the sample analysis program. Site QAPjPs will include a copy of the sample chain-of-custody form; this form will include provisions for each of the following:

- Signature of individual initiating custody control, along with the date and time
- Documentation of sample numbers for each sample under custody
- Signatures of custodians relinquishing and receiving custody, along with date and time of the transfer
- Description of final waste container disposition, along with signature of individual removing waste container from custody
- Comment section

C4-5 Sample Packing and Shipping

In the event that the analytical facilities are not at the generator site, the samples must be packaged and shipped to an off-site laboratory. Sample containers must be packed to prevent any damage to the sampling container and maintain the preservation temperature, if necessary. Department of Transportation (DOT) regulations must be adhered to for shipment of the package.

When preparing SUMMA® canisters for shipment. special care must be taken with the pressure gauge and the associated connections. Metal boxes which have separate compartments, or cardboard boxes with foam inserts are standard shipping containers. The chosen shipping container may be required to meet selected DOT regulations. If temperatures must be maintained, cold packs can be added to the package.

Glass jars are wrapped in bubble wrap or another type of protection. The wrapped jar should be placed in a plastic bag inside of the shipping container, so that if the jar breaks, the inside of the shipping container and the other samples will not be contaminated. The plastic bag will enable the receiving analytical lab to prevent contamination of their shipping and receiving area. Plastic jars do not present a problem for shipping purposes. A DOT approved cooler, or similar package may be used as the shipping container. If temperatures must be maintained, cold packs can be added to the package. If a fill material is needed, compatibility between the samples and the fill should be considered.

Sample containers should be affixed with a tamper-proof seal so that it is apparent if the sample integrity has been compromised. A seal should also be placed on the outside of the shipping container for the same reason. Sample custody documentation must be placed inside of the shipping container, with the current custodian signing to release custody. The shipping documentation will serve as proof of custody during shipment, so the transporter does not need to sign the chain-of-custody documentation.

A Uniform Hazardous Waste Manifest is not required. since samples are exempted from the definition of hazardous waste. All other shipping documentation (i.e., bill of lading, site-specific shipping documentation) is required.

C4-6 List of References

American Society of Mechanical Engineers (ASME), 1994, Quality Assurance Requirements for Nuclear Facility Applications. ASME NQA-1-1994 Edition, New York, New York, American Society of Mechanical Engineers.

American Society for Testing and Materials (ASTM), 1987, "Standard Practice for Reducing Field Samples of Aggregate to Testing Size." ASTM C702-87, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.

American Society for Testing and Materials (ASTM), 1991a, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds." ASTM D4547-91, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.

American Society for Testing and Materials (ASTM), 1995b, Transuranic Waste Characterization Sampling and Analysis Methods Manual. DOE/WIPP-91-043, Current Revision, Carlsbad, New Mexico, Carlsbad Area Office, U.S. Department of Energy.

EG&G, 1994, Idaho National Engineering Laboratory Simulated Solidified Transuranic Waste Sampling Program. EGG-WM-11222, Idaho Falls, Idaho, M. J. Connolly, EG&G - Idaho Inc., Idaho National Engineering Laboratory.

U.S. Department of Energy (DOE), 1995, Transuranic Waste Characterization Sampling and Analysis Methods Manual. DOE/WIPP-91-043, Current Revision, Carlsbad, New Mexico, Carlsbad Area Office, U.S. Department of Energy.

U.S. Environmental Protection Agency (EPA), 1991, Soil Sampling and Analysis for Volatile Organic Compounds. EPA/540/4-91/001, T. E. Lewis, A. B. Crockett, R. L. Siegrist, K. Zarrabi, Office of Research and Development, U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency (EPA), 1992, Specification and Guidance for Obtaining Contaminant-Free Sample Containers. Directive No. 9240.0-05A, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency (EPA), 1988, "Compendium Method TO-14, The Determination of Volatile Organic Compounds (VOC) in Ambient Air Using SUMMA Passivated Canister Sampling and Gas Chromatographic Analyses." *Compendium of Methods for Determination of Toxic Organic Compounds in Ambient Air.* Research Triangle Part, North Carolina, Quality Assurance Division, Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency.

TABLES

TABLE C4-1

GAS SAMPLE CONTAINERS AND HOLDING TIMES

Parameter	Container	Minimum Drum Headspace Sample Volume[a]	Holding Temperatures	Field Holding Time[b]	Shipping Allowance	Laboratory Holding Time[c]
VOCs	SUMMA® Canister	250 ml	0-40 °C	4 days	2 days	28 days

[a] Alternatively, if available headspace is limited, a single 100 ml sample may be collected for determination of VOCs.
[b] From the time of headspace sample collection to shipment.
[c] Programmatic-based maximum holding time. Holding time begins at VTSR.

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TABLE C4-2
SUMMARY OF DRUM FIELD QC HEADSPACE SAMPLE FREQUENCIES

QC Samples	Manifold	Direct Canister	On-Line Systems
Field blanks[a]	1 per sampling batch[d]	1 per sampling batch[d]	1 per on-line batch[f]
Equipment blanks[b]	1 per sampling batch[d]	once[e]	1 per on-line batch[f]
Field reference standards[c]	1 per sampling batch[d]	once[e]	1 per on-line batch[f]
Field duplicates	1 per sampling batch[d]	1 per sampling batch[d]	1 per on-line batch[f]

[a]Analysis of field blanks for VOCs (Table C8-2 of Appendix C8), only, is required. For on-line integrated sampling/analysis systems, if field blank results meet the acceptance criterion, a separate on-line blank is not required.

[b]One equipment blank or on-line sample must be collected, analyzed for VOCs (Table C8-2), and demonstrated clean prior to first use of the headspace gas sampling equipment with each of the sampling heads, then at the specified frequency, for VOCs only thereafter. Daily, prior to work, the sampling manifold, if in use, must be verified clean using an OVA.

[c]One field reference standard or on-line control sample must be collected, analyzed, and demonstrated to meet the QAOs specified in Appendix C8 prior to first use, then at the specified frequency thereafter.

[d]A sampling batch is a suite of samples collected consecutively using the same sampling equipment within a specific time period. A sampling batch can be up to 20 samples (excluding field QC samples), all of which must be collected within 14 days of the first sample in the batch.

[e]One equipment blank and field reference standard must be collected after equipment purchase, cleaning, and assembly.

[f]An on-line batch is the number of samples collected and analyzed within a 12-hour period using the same on-line integrated sampling/analysis system.

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TABLE C4-3
SUMMARY OF SAMPLING QUALITY CONTROL SAMPLE ACCEPTANCE CRITERIA

QC Sample	Acceptance Criteria	Corrective Action[a]
Field blanks	VOC amounts < 3 x MDLs in Table C8-2 of Appendix C8 for GC/MS and GC/FID; < PRQLs in Table C8-2 for FTIRS	Nonconformance if any VOC amount > 3 x MDLs in Table C8-2 of Appendix C8 for GC/MS and GC/FID; > PRQLs in Table C8-2 for FTIRS
Equipment blanks	VOC amounts < 3 x MDLs in Table C8-2 of Appendix C8 for GC/MS and GC/FID; < PRQLs in Table C8-2 for FTIRS	Nonconformance if any analyte amount > 3 x MDLs in Table C8-2 of Appendix C8 for GC/MS and GC/FID; > PRQLs in Table C8-2 for FTIRS
Field reference standards or on-line control sample	70 - 130 %R	Nonconformance if %R < 70 or > 130
Field duplicates or on-line duplicate	RPD ≤ 25	Nonconformance if RPD > 25

[a]Corrective action is only required if the final reported QC sample results do not meet the acceptance criteria.
MDL = Method detection limit
%R = Percent recovery
RPD = Relative percent difference

TABLE C4-4

SAMPLE HANDLING REQUIREMENTS FOR HOMOGENEOUS SOLIDS AND SOIL/GRAVEL

Parameter	Suggested Quantity[a]	Required Preservative	Suggested Container	Maximum Holding Time[b]
VOCs	15 grams	Cool to 4°C	Glass Vial[c]	14 Days Prep/ 40 Days Analyze[d]
SVOCs	50 grams	Cool to 4°C	Glass Jar[e]	14 Days Prep/ 40 Days Analyze[d]
Polychlorinated Biphenyls (PCBs)	50 grams	Cool to 4°C	Glass Jar[e]	14 Days Prep/ 40 Days Analyze[d]
Metals	10 grams	Cool to 4°C	Plastic Jar[g]	180 Days[h]

[a]Quantity may be increased or decreased according to the requirements of the analytical laboratory, as long as the QAOs are met.
[b]Holding time begins at sample collection (holding times are consistent with SW-846 requirements).
[c]VOA vial, must have septum cap.
[d]40-day holding time allowable only for methanol extract - 14-day holding time for non-extracted VOCs.
[e]Opaque glass container, must have Teflon® lined cap (example, amber jar).
[f]Analysis for PCBs is required only for waste streams in matrix parameter category S3220 (organics sludges).
[g]Polyethylene or polypropylene preferred, glass jar is allowable.
[h]Holding time for mercury analysis is 28 days.

FIGURES

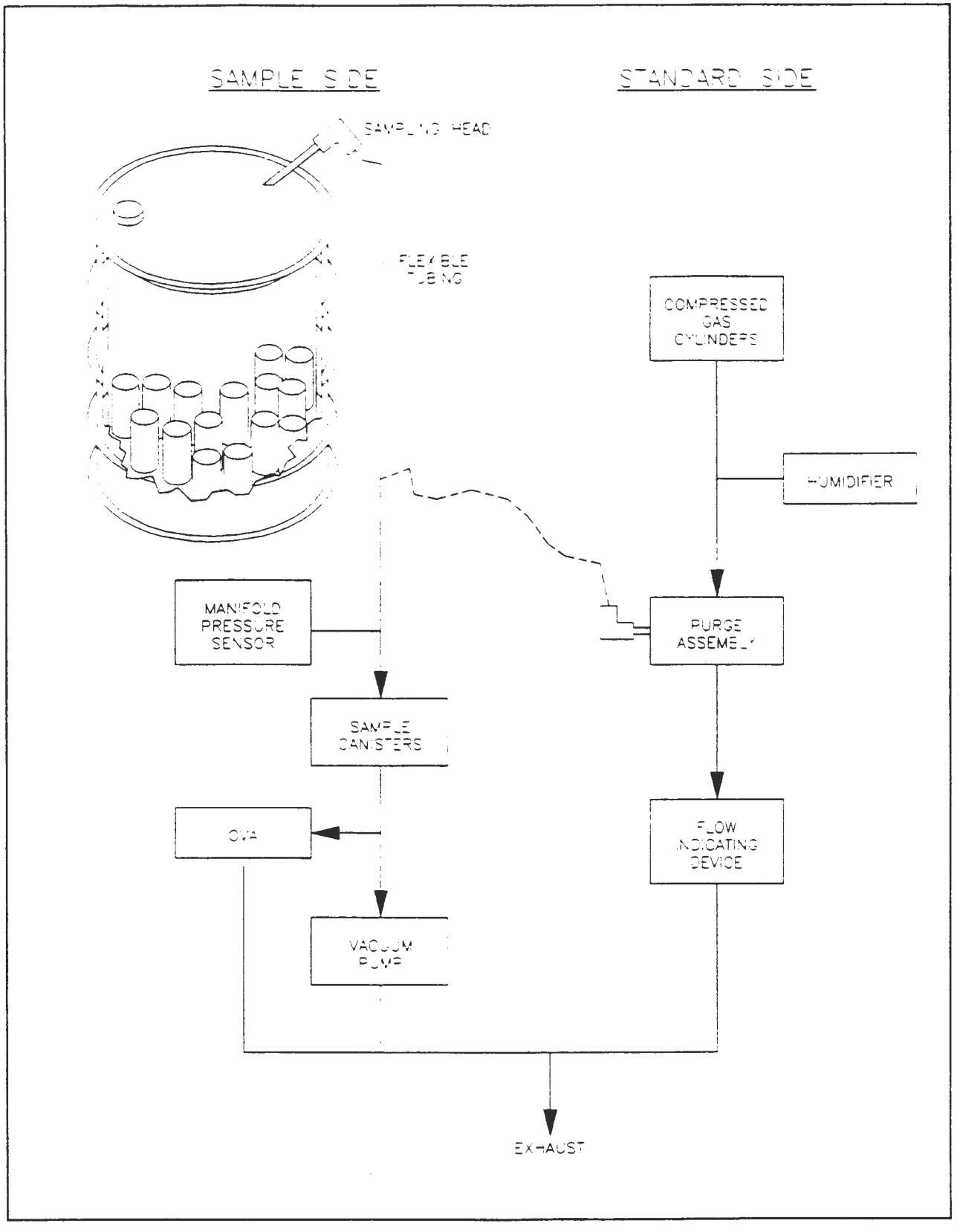


Figure C4-1
Headspace Sampling Manifold

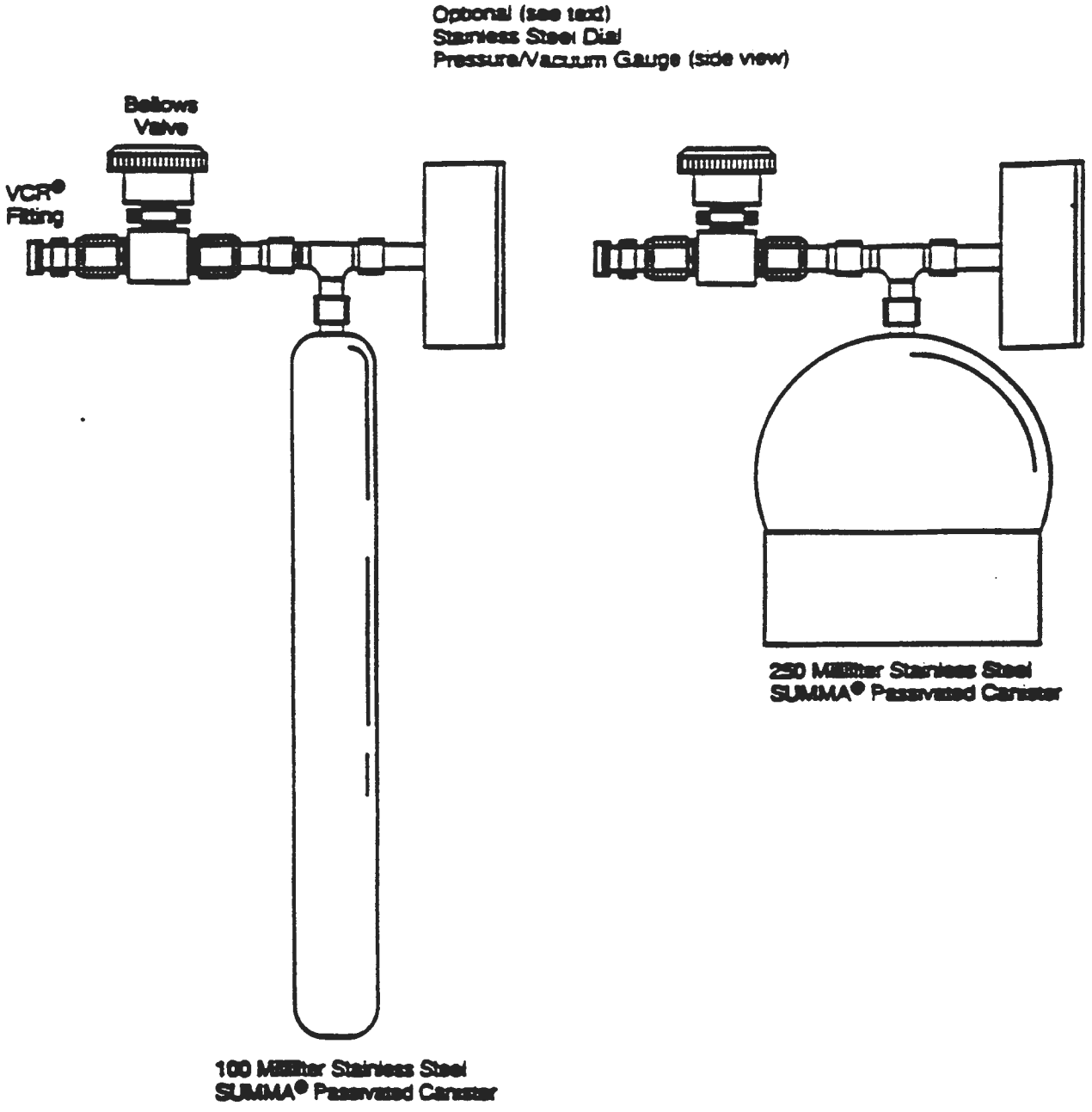


FIGURE C4-2
SUMMA® Canister Components Configuration
(Not to Scale)

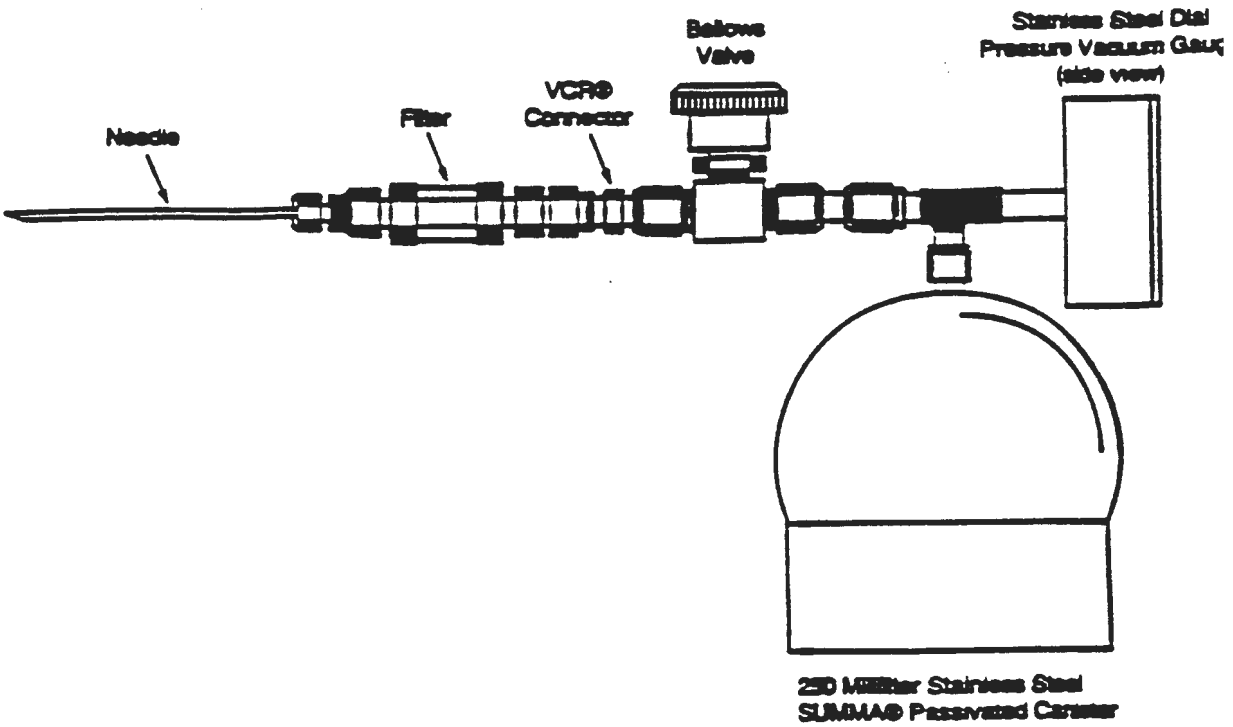
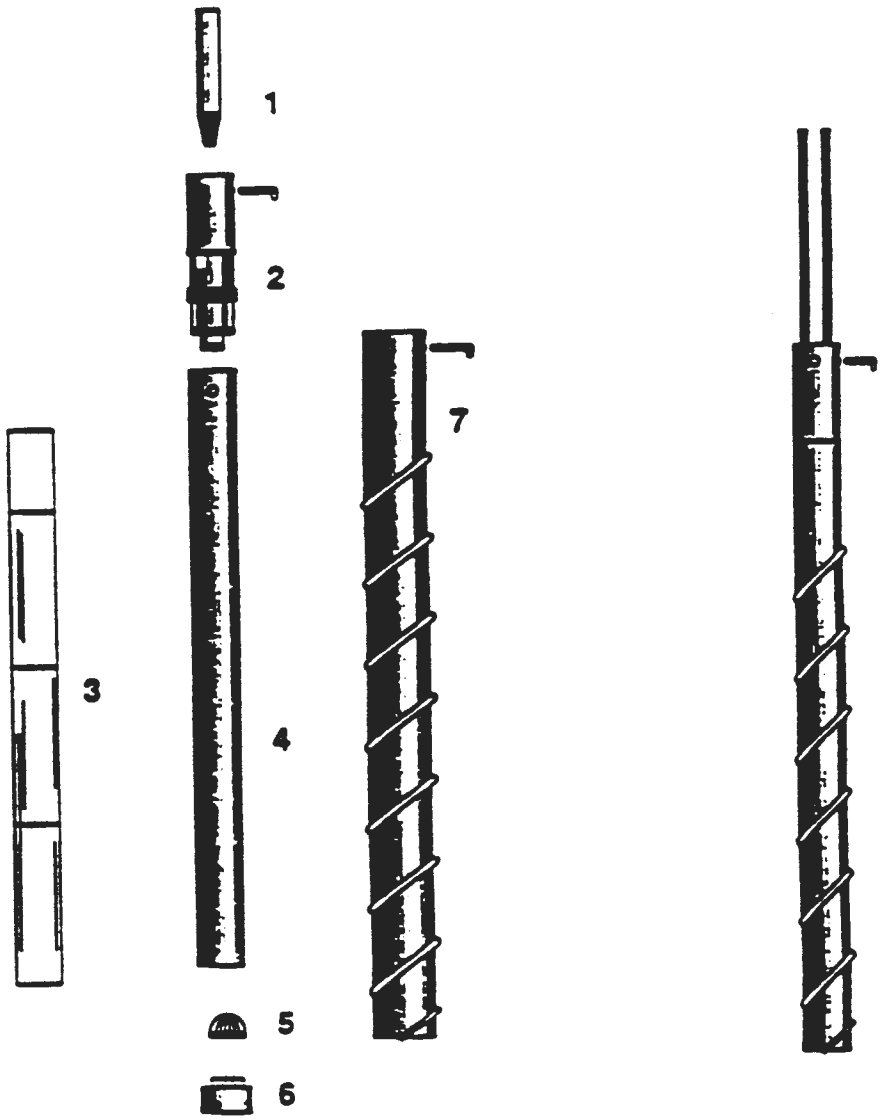


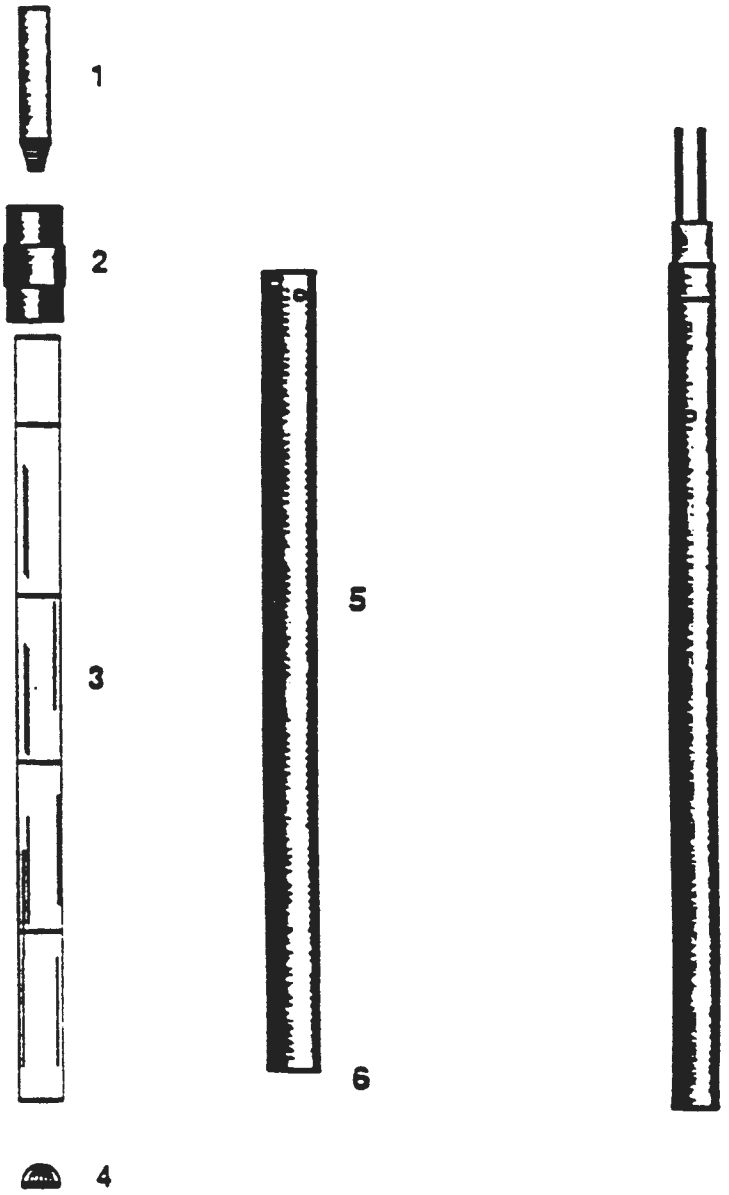
FIGURE C4-3

Schematic Diagram of Direct Canister with the Poly Bag Sampling Head



1 Drill Rod
2 Thrust Bearing Ball Check Valve
3 Clear Teflon® Liners
4 Core Barrel
5 Spring Retainer (optional)
6 Core Barrel Tip
7 Auger and Pin

FIGURE C4-4
Rotational Coring Tool
(Light Weight Auger)



1 Drill Rod
2 Ball Check Valve
3 Clear Teflon® Liners
4 Spring Retainer (optional)
5 Tube
6 Tapered Tip

FIGURE C4-5
Non-Rotational Coring Tool
(Thin Walled Sampler)

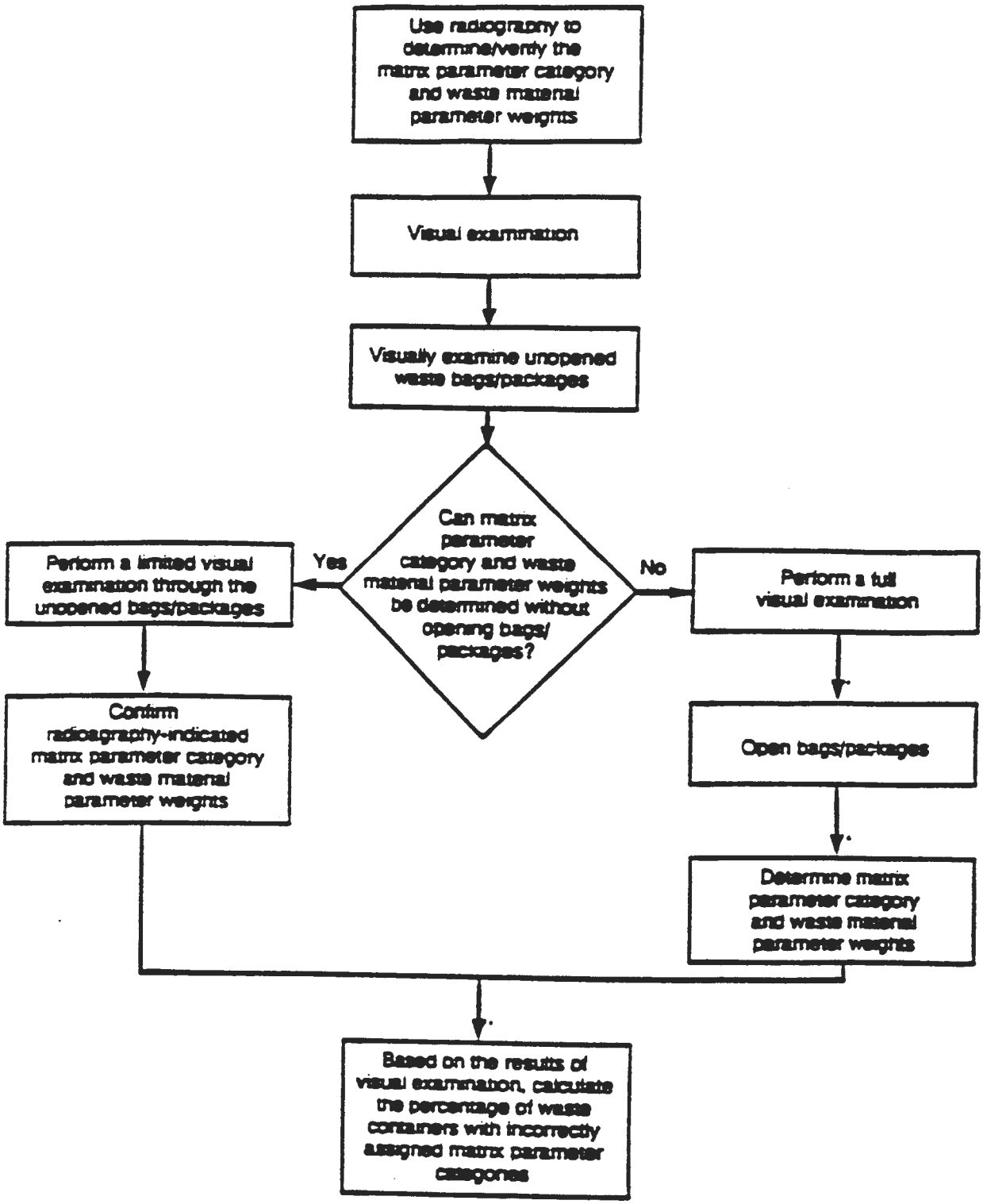


FIGURE C4-6
Overall Programmatic Approach to Visual Examination

APPENDIX C5
APPLICABILITY OF REAL-TIME RADIOGRAPHY

APPENDIX C5
APPLICABILITY OF REAL-TIME RADIOGRAPHY (RTR) [a]

Summary Category Group	Waste Category	Applicable RTR Codes[b]	Waste Description
Homogeneous Solids S3000	Cation and Anion Exchange Resin	A, B, E, G	• Anion and cation exchange resins washed with hot HNO_3 and water then mixed with water and portland cement to form solid mass. Resins are a polystyrene and divinylbenzene copolymer.
Homogeneous Solids S3000	Inorganic Waste Water Treatment Sludge	A, B, E, G, H	• Solidified aqueous waste generated by vacuum filtration of precipitated solids from pretreated aqueous slurry. Filter medium is diatomaceous earth. Wet sludge is solidified with portland cement. • Wet sludge from chemical treatment and mixed with absorbents (i.e., portland cement and Oil-Dri® to absorb free liquid). • Sludges removed from tanks that collected liquid effluent from floor drains; sludge consists of dirt, sand, gravel, floor sweepings, and similar materials; sludges mixed with portland cement. • Sludges removed from tanks that collected liquid effluent from the laundry; sludge consists of lint, spent detergent, and dirt mixed with portland cement. • Cemented inorganic process solids; waste is filter sludge, grit, and firebrick fines, solidified in portland cement. • Cemented or solidified process solids (i.e., grit, firebrick fines, filter sludges, and resins).
Homogeneous Solids S3000	Organic Liquid and Sludge	A, B, E, G	• Waste organic liquid (oil and/or solvents) mixed with gypsum cement (Envirostone®); oils are machining oil and lathe coolant. • Waste organic liquid (oil and/or solvents) mixed with gypsum cement (Envirostone®); oils are machining oil and lathe coolant.

Refer to footnotes at end of table.

APPENDIX C5 (CONTINUED)
APPLICABILITY OF RTR[a]

Summary Category Group	Waste Category	Applicable RTR Codes[b]	Waste Description
Homogeneous Solids S3000	Pyrochemical Salt	A, B, E, G	• Spent chloride salt (combinations of cesium, calcium, magnesium, potassium, and NaCl) from pyrochemical operations.
		A, B, E, F	• Fused halide salt mixtures of NaCl, KCl, and/or $CaCl_2$; some salts also contain $MgCl_2$, CaF_2, CaO.
Homogeneous Solids S3000	Solidified Liquid	A, B, E, G	• Aqueous laboratory wastes that are not compatible with primary aqueous treatment system; waste contains organic acids. Wastes are pH adjusted and solidified by mixing with portland and magnesia cement.
		A, B, E, G, H	• Waste consists of solidified organics that contain plutonium complexing chemicals (i.e., alcohols, organic acids, and chelating agents (EDTA). Liquids mixed with portland cement and magnesia cement.
Solids/Gravel S4000	Soils/Gravel	A, B, C, E, G	• Soil and gravel waste that comprises more than 50% of the waste volume.
Debris Waste S5000	Benelex® and Plexiglas™	A, B, E, G	• Organic solid waste that is noncombustible. Benelex®/Plexiglas™ neutron shielding, black top, concrete, dirt, and sand. • Benelex® and Plexiglas™ glovebox windows. Benelex® (dense laminated, lignocellulose hardboard made from wood chips and particles). Benelex® usually coated with fire retardant paint sometimes had lead sheeting attached to it. Also, leaded glass may be present.
Debris Waste S5000	Combustibles	A, B, C, D	• Solid combustible waste, including paper, rags, cloth, coveralls, plastic, rubber, wood, and other similar material.

Refer to footnotes at end of table.

APPENDIX C5 (CONTINUED)
APPLICABILITY OF RTR[a]

Summary Category Group	Waste Category	Applicable RTR Codes[b]	Waste Description
Debris Waste S5000	Combustibles	A, B, C, E, F	• Combustible solids (dry, damp, or moist), including paper, rags, plastic, surgeon's gloves, coveralls and booties, cardboard, wood, plywood sheeting, filter frames, ladders, bottles, laundry lint, Kimwipes®, canvas, sample vials, respirator face masks, etc.; some waste coated with paint and some contain trace levels of HNO_3.
Debris Waste S5000	Combustibles and Noncombustibles	A, B, C, E, F	• Combustible and noncombustible solids, i.e., dissolved lab samples, absorbed in Oil-Dri®, uranium pellets, plutonium sources, glassware, gloves, Kimwipes®, and used equipment. • Piping, flanges, valves, tools, glasswares, filters, polyethylene bottles, glovebox gloves, paper, and plastics.
Debris Waste S5000	Filters	A, B, C, D OR A, B, E,G	• Frames of filters made of wood or metal and medium is fiberglass or Nomex®-type material. Fulflo® filter cartridges consist of polypropylene plastic. Some filter wastes are processed by the addition of portland cement.
		A, B, C, D	• Absolute filters, high-efficiency particulate air (HEPA) filters, chemical warfare service (CWS) filters, fiberglass and asbestos filter media, asbestos pipe insulation, and asbestos gloves and fire blankets. Filter frames are wood, particle board, or aluminum; filter media either fiberglass or asbestos.
Debris Waste S5000	Firebrick and Ceramic Crucibles	A, B, E, G	• Firebrick, clay absorbent (Oil-Dri®), and insulation. • Leco crucible waste: silicate-based ceramic crucibles and caps. Some contain an accelerator (Fe, Sn, Cu, Tl, stainless steel). • Firebrick wastes consisting of whole or broken pieces of construction bricks, cinderblocks, and incinerator firebrick. Firebrick (high-aluminum/high-strength) composition: Al_2O_3, CaO, Fe_2O_3, MgO, SiO_3, TiO_2, and alkalies.

Refer to footnotes at end of table.

APPENDIX C5 (CONTINUED)
APPLICABILITY OF RTR[a]

Summary Category Group	Waste Category	Applicable RTR Codes[b]	Waste Description
Debris Waste S5000	Glass	A, B, C, E, F	• Glass and ceramic waste including leached Raschig rings, ceramic crucibles, glovebox windows, lab glassware, process equipment, and empty containers.
Debris Waste S5000	Glass (Oil Residue)	A, B, C, E, F	• Unleached glass neutron-absorbing Raschig rings.
Debris Waste S5000	Graphite	A, B, C, E, F	• Broken graphite molds and graphite furnace equipment or graphite chunks and pieces from mold cleaning and declassification. Also discarded lab equipment.
Debris Waste S5000	Leaded Rubber	A, B, C, E, F	• Leaded gloves and aprons comprised of layers of Hypalon® rubber and PbO-impregnated neoprene. Limited amounts of unleaded gloves, lead bricks, and lead sheeting may be included.
Debris Waste S5000	Metal	A, B, C, E, F	• Nonpyrophoric waste metals (iron, copper, aluminum, stainless steel, tungsten, lead, and tantalum). • Beryllium chips. • Billets of Zn-Mg alloy. • Noncompressible and noncombustible items (i.e., filters, metal equipment, furnace brick, metal crucibles, and funnels). Metals are tantalum, tungsten, platinum, and lead. • Metals from small hand tools, valves, trays, clamps, pipes, gloveboxes, furnaces, tanks, respirator filters, control panels, etc.

[a]Remote-handled (RH) transuranic (TRU) waste characterization data requirements will provide the same types of information to the extent that this is consistent with RH TRU waste forms.
[b]Real-Time Radiography (RTR) codes:

A Verification of compliance with packaging requirements.

B Verification of physical waste form identification.

C Verification of Waste Matrix Code.

Refer to footnotes at end of table.

APPENDIX C5 (CONTINUED)
APPLICABILITY OF RTR[a]

D Verification of absence of noncompliant items, including free liquids and compressed gases throughout the volume of the container.

E Verification of absence of free liquids around the perimeter of the container (between drum/liner, liner/poly bag, and poly bag/waste).

F Verification of absence of noncompliant items, including free liquids and compressed gases throughout the volume of the container, conditional on the physical geometry of the waste and the resulting package density (variable void volume).

G Density of the waste may negate RTR examination of the entire container.

H Process knowledge is well defined and precludes introduction of extraneous materials, such as pressure vessels.

NOTE: The use of trade names or brand names in this table does not constitute endorsement by the DOE or its contractors.

APPENDIX C6
STATISTICAL METHODS USED IN SAMPLING AND ANALYSIS

APPENDIX C6
STATISTICAL METHODS USED IN SAMPLING AND ANALYSIS

C6-1 Approach for Statistically Selecting Waste Containers for Visual Inspection

As a Quality Control check on radiography, a statistically selected portion of the certified waste containers must be opened and visually examined. The data from visual examination must be used to verify the matrix parameter category and waste material parameter weights as determined by radiography.

The data obtained from the visual examination must also be used to determine, with acceptable confidence, the percentage of miscertified waste containers. Miscertified containers are those that radiography indicates meet the Waste Isolation Pilot Plant Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

Experience at the Idaho National Engineering Laboratory indicates that two-percent of the radiography-certified waste containers have been miscertified when compared to the results of visual examination (EG&G 1994). Participating sites must use this historical miscertification rate to calculate the number of waste containers that must be visually examined. The miscertification rate must be determined each year based on results of certification activities over a minimum of 12 months. Table C6-1 provides the number of waste containers that must be visually examined for several miscertification rates and waste container population sizes.

Table C6-1 has been developed with the use of an EG&G Idaho, Inc. engineering design file (EG&G 1994). The number of waste containers requiring visual examination will ensure the program is 80-percent confident that if the true miscertification rate is the same as the percent column heading of Table C6-1, and if the indicated number of waste containers is examined, the Upper Confidence Level of 90 percent (UCL_{90}) of the miscertification percentage will be less than 14 percent (i.e., there is only a 10-percent chance that the miscertification rate is greater than 14 percent). If the number of containers listed in Table C6-1 are visually examined, it is simply guaranteed that the UCL_{90} of the miscertification percentage will be less than 14 percent; 14 percent is a worst case. In actuality, when UCL_{90}s have been calculated from sample data, most of them will be much smaller than 14 percent.

For the hypergeometric approach to determining the number of containers to be visually examined, the acceptable level of uncertainty is the estimate of the proportion miscertified (along with the information on the previous percentage miscertified) determines the number of containers that must be examined. The rationale and details of this methodology are discussed below.

In a population of size N, there are M miscertified containers, so the true proportion of the miscertified containers in the population is $M/N = p_{true}$. Since p_{true} (or M) is not known, we wish to estimate it by randomly sampling some of the containers. If in a sample of n containers, x are found to be miscertified, the sample estimate ($\hat{p}$) of the true population proportion p_{true} is:

$$\hat{p} = \frac{x}{n} \tag{C6-1}$$

This value is only an estimate, and as such has some uncertainty associated with it. This uncertainty is quantified by calculating the upper one-sided (1-α) percent confidence limit for p, defined as p_{UCL}. This confidence limit gives the largest value the true proportion could take on and still have a "reasonable" chance (e.g., an α = 0.10 probability) of producing x miscertified containers in a sample of n out of N. This upper confidence limit is calculated as:

$$p_{UCL} = \frac{M_{UCL}}{N} \tag{C6-2}$$

where M_{UCL} is the largest value of M such that the probability of observing x or fewer miscertified containers in a sample of size n is less than or equal to α. That is, it is the largest value of M such that the following inequality is true:

$$\sum_{k=0}^{x} \frac{\binom{M}{k}\binom{N-M}{n-k}}{\binom{N}{n}} \leq \alpha \tag{C6-3}$$

where each term in parentheses has the usual combinatorial interpretation. For example:

$$\binom{M}{k} = \frac{M!}{k!\,(M-k)!} \tag{C6-4}$$

Each term in the sum in Equation C6-3 is the hypogeometric probability of observing k miscertified containers in a sample size n from a population of size N in which there are M miscertified containers (and hence the population proportion of miscertified containers is p =M/N). The value M_{UCL} is obtained by substituting different values for M into Equation C6-3 until the largest value satisfying the inequality is found.

Note that in Equation C6-3, the upper confidence limit is dependent on x, the number of miscertifications observed in the sample, as well as on n, the sample size. So, to obtain the required sample size, the values of x that are likely to be seen also need to be considered. Sample size is thus determined by setting a desired upper confidence limit value and then manipulating x and n in Equation C6-3.

C6-2 Approach for Statistically Selecting Waste Containers for Totals Analysis

The statistical approach for characterizing retrievably stored homogeneous solids and soil/gravel waste using sampling and analysis relies on acceptable knowledge to segregate waste containers into relatively homogeneous waste streams. In this way it is reasonable to classify as hazardous or nonhazardous the entire waste stream rather than individual waste containers. Individual waste containers serve as convenient units for characterizing the combined mass of waste from the waste stream of interest. Once segregated by waste stream, random selection and sampling of the waste containers followed by analysis of the waste samples must be performed to ensure that the resulting mean contaminant concentration provides an unbiased representation of the true mean contaminant concentration for each waste stream. The site project manager shall verify that the samples collected from within a waste stream were selected randomly.

The end use of analytical results for retrievably stored homogeneous solids and soil/gravel is for determining the Environmental Protection Agency hazardous waste D-codes that apply to each waste stream. The D-codes are indicators that the waste exhibits the toxicity characteristic for specific contaminants under the Resource Conservation and Recovery Act (RCRA). The RCRA-toxicity determination is made on the basis of sampling and analysis of waste streams and on whether or not the waste stream carries F-codes. If a waste stream carries one or more RCRA F-codes, toxicity characteristic contaminants associated with the F-codes are not included in the RCRA-toxicity characteristic determination. That is, the F-codes take precedence over RCRA-toxicity D-code. Therefore, toxicity characteristics contaminants associated with F-codes(s) for a waste stream must be omitted from all calculations for determining the number of containers to sample. In addition, each toxicity characteristic contaminant associated with the F-code(s) must be excluded from evaluation of analytical results to determine D-codes. Contaminants of interest for the sampling, analysis, and RCRA-toxicity determination of a waste stream, then, excludes contaminants associated with F-codes that have been assigned to the waste stream.

The sampling and analysis strategy is illustrated in Figure C6-1. Preliminary estimates of the mean concentration and variance of each RCRA regulated contaminant in the waste will be used to determine the number of waste containers to select for sampling and analysis. The preliminary estimates will be made by obtaining a preliminary sample from the waste stream or from previous sampling from the waste stream. The applicability of the preliminary estimates to the waste stream to be sampled must be justified and documented. The estimates will be determined in accordance with the following equations:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i \tag{C6-5}$$

$$s^2 = \frac{1}{n-1} \sum_{i=1}^{n} (x_i - \bar{x})^2 \tag{C6-6}$$

where $\bar{x}$ is the calculated mean and s^2 is the calculated concentration variance, n is the number of samples analyzed, x_i is the concentration determined in the *ith* sample, and *I* is an index from 1 to n.

The ratio of the standard deviation, s, to the mean is called the coefficient of variation (CV); preliminary estimates for CV must be calculated for all contaminants of interest which are described above. The highest CV will be used in determining the number of samples to collect and analyze. Analysis results will then be summarized on a contaminant-specific basis. The calculations for the number of samples to collect and calculations for analysis summaries are described in subsequent paragraphs.

The preliminary estimated concentration mean and associated variance for the contamination with the highest CV among all contaminants of interest must then be used to calculate the number of samples required, n, in accordance with the procedure described in Cochran (1977). As a first approximation, take

$$n_0 = \frac{s^2}{\bar{x}^2 c} \tag{C6-7}$$

where s^2 and $\bar{x}$ are the preliminary estimates for the variance and the mean, and

$$c = \frac{r^2}{t^2_{\alpha, n_0 - 1}} \tag{C6-8}$$

where $t_{\alpha,n0-1}$ is the 90th percentile for a t distribution with n_0-1 degrees of freedom. The parameter r is taken as 1.0, which represents a relative error of 100 percent. This choice of r is made in order to obtain the Type I and Type II error rates. This reduces Equation C6-7 to

$$n_0 = \frac{t^2_{\alpha, n_0 - 1} s^2}{\bar{x}^2} \tag{C6-9}$$

Because t_{α,n_0-1} is dependent on n_0, the calculation procedure is iterative. If the ratio of n_0 to the number of containers in the waste stream, N, is appreciable, the number of samples required may be reduced to

$$n = \frac{n_0}{1 + \frac{n_0}{N}} \qquad \text{(C6-10)}$$

The effect of the ratio n_0/N on n in Equation C6-10 depends on n_0. Equation C6-10 should be used for cases where it results in a different number of samples from n_0. All calculations should be rounded up to the nearest integer. A minimum of five containers must be sampled and analyzed in each waste stream. If there are fewer than the minimum or required number of containers in a waste stream, one or more containers must be sampled more than once to obtain the samples of the waste. Otherwise any one container may be selected for sampling only once.

The calculated number of required waste containers will then be randomly sampled and analyzed. If waste container samples for the preliminary mean and variance estimates were randomly collected from the same waste stream lot being examined and were collected and analyzed in the manner required for characterization samples, then these samples may be counted toward meeting the required number. The number of waste containers that must be sampled is dependent on defined levels of acceptable error for the hazardous versus nonhazardous determination, as described below.

C6-3 Upper Confidence Limit

Upon completion of the required sampling, final mean and variance estimates and the UCL_{90} for the mean concentration for each contaminant must be determined. The UCL_{90} for the mean concentration of each contaminant will be calculated in accordance with the following equation:

$$UCL_{90} = \bar{x} + \frac{t_{\alpha,n-1}s}{\sqrt{n}} \qquad \text{(C6-11)}$$

The observed sample CV must be checked against the preliminary estimate for CV used in determining the number of samples to be collected before proceeding. If the observed sample CV is greater than the preliminary estimate for CV, the required number of samples must be recomputed using the observed CV. If the observed sample CV estimate results in greater than 20 percent more required samples, then additional sampling and analysis must occur. Once sufficient sampling and analysis has occurred, the determination of whether the waste stream is RCRA-hazardous or nonhazardous will proceed. The determination will be made with 90 percent confidence. If the UCL_{90} for the mean concentration is less than the regulatory threshold limit, the waste stream will be classified as nonhazardous for this contaminant. If the UCL_{90} is

greater than or equal to the regulatory threshold limit, the waste stream will be classified as hazardous for this contaminant.

C6-4 Justification for Use of the 90 Percent Confidence Limit for RCRA Characterization of Transuranic Waste

A 90 percent confidence limit was determined to be adequate and appropriate for the following reasons:

- The hazardous waste determination is made based on "Total Analysis" of waste as opposed to the Toxicity Characteristic Leaching Procedure. This approach uses the regulatory limits that incorporate assumptions that samples are 100 percent solid (i.e., no moisture content) and contaminants are 100 percent soluble in the extraction fluid. "Total Analysis" also uses a more aggressive extraction procedure (i.e., stronger acids) which more completely solubilize contaminants. This is an inherently conservative approach and waste analyzed by "Total Analysis" methods.

- Regardless of the hazardous or non-hazardous determination associated with any particular waste stream or individual waste container, all contact-handled waste will be handled in the same manner during transportation to and emplacement at the WIPP. All waste will be handled, stored, and disposed in a way that meets the requirements for hazardous waste.

- Waste will not be segregated on the basis of a RCRA hazardous determination for the purpose of handling or disposal, so safety related issues are not a concern for "mis-designated" waste. Emergency response personnel will be adequately equipped to mitigate health and safety concerns associated with hazardous waste.

Simulated hazardous waste determinations using both the 90 percent and 95 percent confidence limits indicate an approximate 60 percent increase in sampling and analysis costs to achieve a 95-percent confidence limit. The Department of Energy considered the consequence of increasing the confidence level from 90 to 95 percent for determining whether or not waste streams exhibit the toxicity characteristic. Calculations show that the number of containers to sample increases from 57 to 70 percent with the increase in confidence.

Calculations used Equation C6-9, which pertains to sampling of retrievably stored homogeneous solids and soil/gravel waste. The factor that changes with confidence level is $t^2_{\alpha, n-1}$, which also changes with the calculated number of containers to sample (n). Therefore, this factor is used to calculate the percent increase in n, for different possible values of n. The finite population factor (Equation C6-10) is not used in these calculations; however, it is not expected to significantly affect the results.

The results are given in Table C6-2. For the values of n between 5 and 500 at 90 percent confidence, increases the range from 57 to 70 percent. The values of n for both 90 and 95 percent confidence are given in the table so the number of containers required to be sampled can be directly compared. Because of the formulation for calculating the required number of containers to sample, the tabled values do not depend on the number of containers in the waste stream. The number of containers to sample reflects variabilities of constituent concentrations observed in the waste stream; in particular, it reflects the maximum ratio of standard deviation to mean concentration, which is the maximum coefficient of variation. For example, for a waste stream of any size that has a coefficient of variation of 0.918, the required number of containers to sample increases 60 percent from 5 for 90 percent confidence to 8 for 95 percent confidence.

C6-5 Control Charting for Newly Generated Waste Stream Sampling

Significant process changes and process fluctuations can be determined using statistical process control (SPC) charting techniques; these techniques require historical data for determining limits for indicator species, and subsequent periodic sampling to assess process behavior relative to historical limits. SPC may be performed on waste prior to solidification or packaging for ease of sampling. If the limits are exceeded, the waste stream must be recharacterized, and the characterization must be performed according to procedures required in the Transuranic Waste Characterization Quality Assurance Program Plan for retrievably stored waste.

A Shewhart control chart (Gilbert, 1987) is a control chart for means that can be used for checking whether current data are consistent with past data and whether shifts or trends in means have occurred. The control chart for means is constructed of a center line and upper and lower control limits that are based on the mean and standard deviation of historical data for the process. If a current sample mean from the process lies within the limits, the process is said to be "in control", or consistent with historical data. If the current mean exceeds the limits, the process has likely changed from historical periods.

Logical sets of historical data to be used for the construction of limits in this application are the data from the initial characterization of the waste stream, if available, from characterization of a different lot of the waste stream, or from a retrievably stored waste stream of the same type from the same process. The data used for construction of the limits must be justified. The underlying assumptions for control charts are that the data are independent and normally distributed with constant mean μ and constant variance σ^2. The statistical tests for normality must be conducted and data transformation to normality performed, if necessary. Transformations must take place prior to any calculations that use the data.

Each limit will be constructed such that there is a 90 percent confidence that the true mean does not exceed a limit. One-sided control limits are used because once a waste stream has been determined to be RCRA-hazardous, the limit exceedence of interest is on the lower side; that is when the process may become nonhazardous. Likewise, once a waste stream has been determined to be RCRA-hazardous, the limit exceedence of interest is on the upper side; that

is when the process may become RCRA-hazardous. Whether or not exceeding the limit would result in a change in the RCRA-hazardous nature of the waste stream depends on how close the limits are to RCRA limits.

Current process data will be collected and averaged for comparison to the control limit for the mean. The collection period and number of samples to be included in the average are dependent on the waste stream characteristics. A small number of samples will reflect more of the process variability and there will potentially be more limit exceedence. If two or three samples are collected for the mean in the required annual (or batch) sampling of a relatively homogeneous waste stream, limit exceedences may not occur. If the waste stream is more variable, it will be necessary to collect more samples to meet the required confidence limit.

Periodically it will be necessary to update the control limit for a process. An update is performed that includes all historical data if there is no evidence of a trend in the process or a shift in the mean for the process. If there has been a shift in the mean, only more recent data that reflects the shift is used. In general, control limits should be based on at least ten data points that are representative of the process and do not exhibit outliers or a trend with time.

REFERENCES

Cochran, William G. 1977. *Sampling Techniques.* New York, New York, John Wiley & Sons: pp.77-78.

EG&G. 1994. *Description of the SWEPP Certified Waste Sampling Program for FY-94.* Engineering Design File, RWMC-363, Revision 6, Idaho Falls, Idaho, EG&G - Idaho Inc., Idaho National Engineering Laboratory.

Gilbert, Richard O. 1987. *Statistical Methods for Environmental Pollution Monitoring.* New York, Van Nostrand Reinhold.

TABLES

TABLE C6-1
NUMBER OF WASTE CONTAINERS REQUIRING VISUAL EXAMINATION

Annual Number of Waste Containers Undergoing Characterization	Number of Waste Containers Requiring Visual Examination Based on Percent of Waste Containers Miscertified to WIPP-WAC by Radiography in Previous Year(s)					
	1%	2%	3%	4%	5%	6%
50	22[a]	22	22[a]	22	29[a]	29
100	15	24	24	33	33	41
200	15	26	26	35	44	52
300	15	26	26	35	44	53
400	15	26	26	36	45	62
500	16	26	26	36	45	63

[a]Number of containers for the higher even-number percent of miscertified containers is used because an odd percent implies a noninteger number of containers are likely to be miscertified.

TABLE C6-2

PERCENT INCREASE IN NUMBER OF CONTAINERS (*n*) TO SAMPLE WITH INCREASE IN CONFIDENCE FROM 90 PERCENT TO 95 PERCENT

n for 90 Percent Confidence	n for 95 Percent Confidence	Approximate Percent Increase
5	8	60.00
6	10	66.67
7	11	57.14
8	13	62.50
9	15	66.67
10	17	70.00
25	41	64.00
100	165	65.00
500	824	64.80

Note: Finite population factor not accounted for.

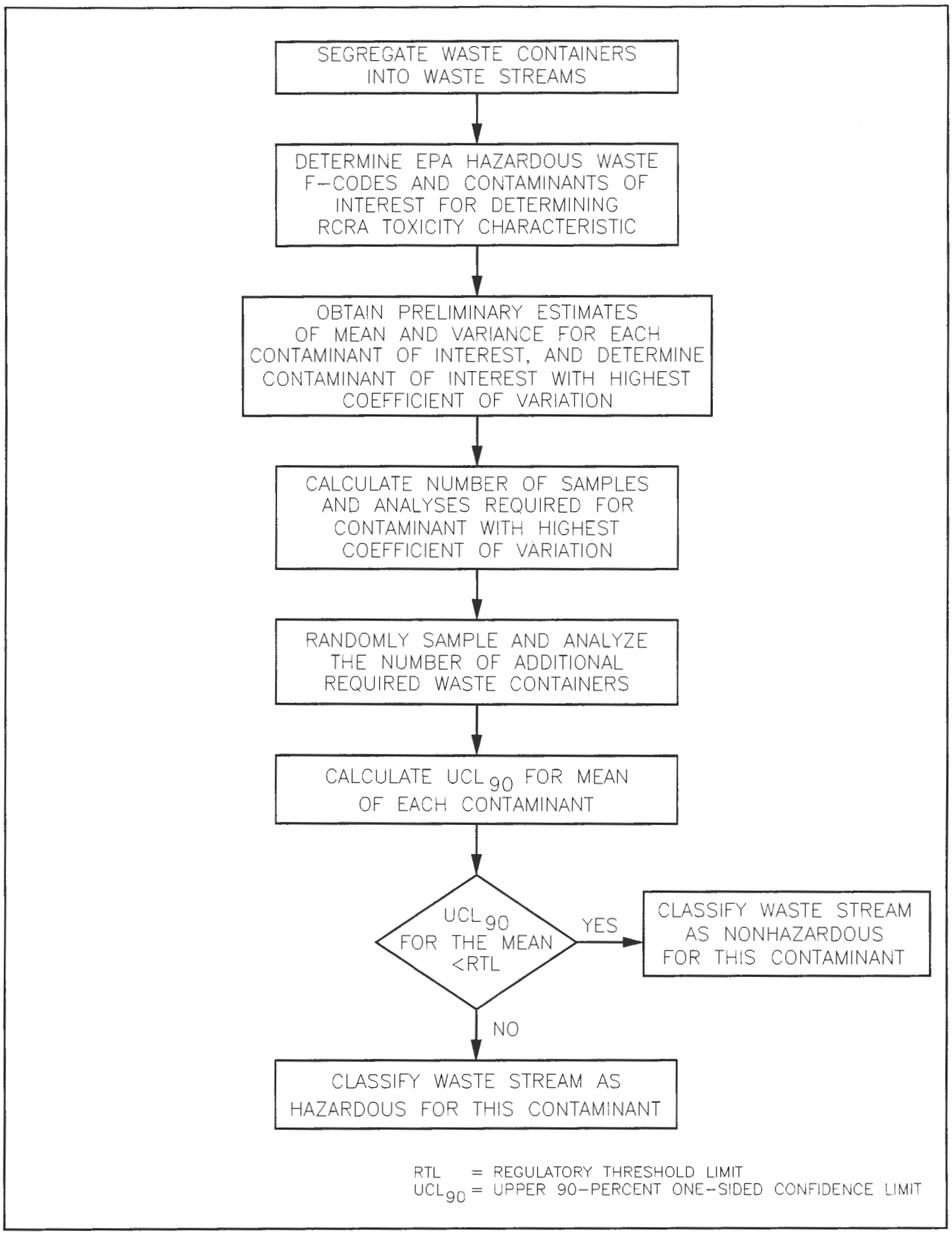


Figure C6-1

Statistical Approach to Sampling and Analysis of Waste Streams of Retrievably Stored Homogenous Solids and Soil/Gravel

APPENDIX C7
SUBMITTAL AND APPROVAL OF ALTERNATIVE TRU WASTE CHARACTERIZATION ANALYTICAL METHODS

APPENDIX C7

SUBMITTAL AND APPROVAL OF ALTERNATIVE TRU WASTE CHARACTERIZATION ANALYTICAL METHODS

C7-1 Purpose and Scope

The National Transuranic Program (NTP) Organization provides the *Transuranic Waste Characterization Sampling and Analysis Methods Manual* (Methods Manual) (DOE 1995a) for use when characterizing transuranic (TRU) waste. However, the NTP recognizes that new or modified techniques may be needed to meet performance objectives for specific wastes and to minimize waste generation associated with sampling and analysis. The NTP has developed a written procedure for guidance to the analytical laboratories at the generator site who want to submit an alternative analytical method for approval by the NTP.

The procedure provides an initial approval process, a list of minimum performance data required for approval of the alternative method verification, and the process of method acceptance. It includes method format specifications, documentation, and supporting data required as part of requests for alternative method approval.

The *Transuranic Waste Characterization Quality Assurance Program Plan* (QAPP) (DOE 1995b) establishes a performance based program where quality assurance objectives (QAO) are defined for all analytes. The Methods Manual contains approved methods with demonstrated performance data that meet the QAOs and should be used if possible. The TRU Waste Characterization Interface Working Group (WCIWG) is responsible for the review and recommendation of alternative methods to the NTP (DOE 1995c). Final approval of alternative methods will not be granted unless the QAOs described in the QAPP have been met.

C7-2 Preliminary Approval

The preliminary approval process is used to screen the number of alternative methods requiring review and approval. The approval must be obtained in the planning and initial testing stages of the method development process to avoid duplication of efforts and conserve time and resources. To obtain the preliminary approval, the author must submit a written description of the method, with justification and supporting documentation, to the NTP Waste Characterization Manager at the Department of Energy Carlsbad Area Office (DOE/CAO).

The method description must be complete enough so that the technical applicability can be assessed. Any limitations of the method must be clearly stated. Criteria for appropriate justifications are: 1) previous analytical data supporting the fact that existing or approved methods cannot be used (e.g., a radioisotope creates an interference), 2) data supporting the fact that an approved method cannot meet the QAOs for a specific matrix, or 3) information demonstrating that an alternative analytical method offers a distinct advantage over the approved methods, such as waste minimization, reduction of analytical time, or reducing worker radiation exposure.

When submitting justification statements in cases of waste matrix interferences that prohibit compliance with required QAOs, the author must demonstrate with supporting data that: 1) the laboratory personnel can satisfactorily analyze other less complex matrices (e.g., water) using an existing approved method, 2) the analyte or matrix interferences from the specific waste is the cause for nonconformance with the QAOs, and 3) there is sufficient evidence from literature or other studies that support the potential use of this alternative method for this waste.

A description of the method will be posted on the WCIWG bulletin board in the Analytical and Test Methods Development Forum to enable the review committee to seek input from other sites. In addition, other sites may comment with supporting data or additional information that will aid the review committee.

C7-3 Required Elements of Alternative Methods

When a method is submitted for approval, all twelve sections of the method, as presented in the Methods Manual, must be included. Tables, figures, flowcharts, equations, units, nomenclature, and references must be clearly labeled and follow the Methods Manual format. The performance criteria must apply to at least one matrix, and the actual method must have been successfully tested on simulated or actual waste samples.

Minimum performance data, demonstrating compliance with the requirements of the QAPP, must be provided for each waste matrix for which the method is to be used that consists of:

- A detection limit study including the statistical method for calculation (seven spiked replicates)
- A precision and bias study using spike and replicate samples of the matrix of interest or similar matrix
- A method blank study using reagents and equipment to ensure contamination will not be a problem
- Data demonstrating the QAPP QAOs are met for accuracy and precision (spike, duplicate, and replicate measurements)
- An interference study using waste matrix spikes

C7-4 Final Approval

A review committee for review and approval of proposed methods will be assembled by the WCIWG chairperson. The review committee will be composed of individuals with expertise in the field of the proposed method. The review process includes determining the applicability of the method; reviewing the performance data, quality control sample requirements, and acceptance criteria, bias and interferences; and checking the equations and calculations. The data that demonstrate results, sensitivity, and repeatability also will be reviewed and checked for accuracy and completeness.

A formal comment and response process will be documented to provide for the clarification of issues relating to the methods and performance data. This also ensures that methods undergo a comparable review process and obtain equal consideration. In some cases, additional performance information, Quality Control data, or more investigation will be required before approval. In other cases, the method may not be approved because the QAOs were not met. In either situation, the method author is allowed one written challenge to the WCIWG review committee's decision.

After the method has undergone WCIWG committee review, all reviewer's comments have been satisfactorily resolved, and the final changes have been made to the method, the method is submitted to the DOE/CAO Quality Assurance Manager for concurrence. After concurrence, the method will be submitted to the DOE/CAO Regulatory Compliance Manager for review and approval. The DOE/CAO Regulatory Compliance Manager will submit the proposed method to the New Mexico Environment Department (NMED) for concurrent review. Upon completion of its review of the proposed method, the NMED must provide a written statement that the method is acceptable, or written comments to the DOE/CAO Regulatory Compliance Manager. The DOE/CAO Regulatory Compliance Manager will notify in writing the WCIWG chairperson regarding whether the method can or cannot be used for TRU waste characterization. Methods approved by both the DOE/CAO Regulatory Compliance Manager and the NMED will be incorporated into the Methods Manual. Methods not approved by the DOE/CAO Regulatory Compliance Manager or found unacceptable by the NMED will not be incorporated into the Methods Manual until all comments have been resolved. Also, the availability of approved, alternative methods will be posted on the WCIWG electronic bulletin board in the TRU Waste Characterization Methods Manual Protocols Forum (DOE 1995d). As additional performance data are generated, these data are also made available through the bulletin board to ensure the most current information is available to the generator sites. Records associated with this review and approval process will be kept on file by the DOE/CAO and will be available for review.

C7-5 References

DOE. 1995a. *Transuranic Waste Characterization Sampling and Analysis Methods Manual.* DOE/WIPP-91-043, Current Revision, Carlsbad, New Mexico, Carlsbad Area Office, U.S. Department of Energy.

DOE. 1995b. *Transuranic Waste Characterization Quality Assurance Program Plan.* CAO-94-1010, Revision 0, Carlsbad, New Mexico, Carlsbad Area Office, U.S. Department of Energy.

DOE. 1995c. *Waste Characterization Interface Working Group Charter.* Carlsbad, New Mexico, Carlsbad Area Office National Transuranic Program, U.S. Department of Energy.

DOE. 1995d. *TRU Waste Characterization Interface Working Group Communications Plan.* May, 1995, Carlsbad, New Mexico, Carlsbad Area Office, U.S. Department of Energy.

APPENDIX C8
QUALITY ASSURANCE OBJECTIVES AND DATA VALIDATION TECHNIQUES FOR WASTE CHARACTERIZATION SAMPLING AND ANALYTICAL METHODS

APPENDIX C8
QUALITY ASSURANCE OBJECTIVES FOR WASTE CHARACTERIZATION SAMPLING AND ANALYTICAL METHODS

C8-1 Validation Methods

Validation of all data (qualitative as well as quantitative) shall be performed so that data used for Waste Isolation Pilot Plant (WIPP) compliance programs will be of known and acceptable quality. Validation includes a quantitative determination of precision, accuracy, completeness, comparability, and method detection limit (as appropriate) for analytical data (headspace Volatile Organics Compounds (VOC) and total VOCs, Semivolatile Organic Compounds (SVOC), and metals data). Quantitative data validations shall be performed by the data generation level Quality Assurance (QA) officer according to the conventional methods outlined below (equations C8-1 through C8-8). These quantitative determinations will be compared to the Quality Assurance Objectives (QAOs) specified in Sections C8-2 through C8-9. A qualitative determination of representativeness will also be performed.

The qualitative data or descriptive information generated by radiography is not amenable to statistical analysis. However, radiography and visual examination are complementary techniques yielding similar data for determining the waste matrix code and waste material parameter weights of waste present in a waste container. Therefore, visual examination results shall be used to verify the waste matrix code and waste material parameter weights determined by radiography.

Representativeness of waste containers from waste streams subjected to visual examination and homogeneous solids and soil/gravel sampling and analysis will be validated, through documentation, that a true random sample was collected. Since representativeness is a quality characteristic that expresses the degree to which a sample or group of samples represents the population being studied, the random selection of waste containers ensures representativeness on a Program level. The Site Project Manager shall document that the selected waste containers from within a waste stream were randomly selected. Sampling personnel shall verify that proper procedures are followed to ensure that samples are representative of the waste contained in a particular waste container or a waste stream.

Precision

Precision is a measure of the mutual agreement among multiple measurements of a single analyte, either by the same method or by different methods. Precision is either expressed as the relative percent difference (RPD) for duplicate measurements or as the percent relative standard deviation (%RSD) for three or more replicate measurements. For duplicate measurements, the precision expressed as the RPD is calculated as follows:

$$RPD = \frac{C_1 - C_2}{\frac{(C_1 + C_2)}{2}} \times 100 \qquad \text{(C8-1)}$$

where C_1 and C_2 are the two values obtained by analyzing the duplicate samples. C_1 is the larger of the two observed values.

For three or more replicate measurements, the precision expressed as the %RSD is calculated as follows:

$$\%RSD = \frac{s}{\bar{y}} \times 100 \qquad \text{(C8-2)}$$

where s is the standard deviation and $\bar{y}$ is the mean of the replicate sample analyses.

The standard deviation, s, is calculated as follows:

$$s = \sqrt{\sum_{i=1}^{n} \frac{(y_i - \bar{y})^2}{n - 1}} \qquad \text{(C8-3)}$$

where y_i is the measured value of the ith replicate sample analysis measurement, and n equals the number of replicate analyses.

Another aspect of precision is associated with analytical equipment calibration. In these instances, the percent difference (%D) between multiple measurements of an equipment calibration standard shall be calculated as follows:

$$\%D = \left|\frac{C_1 - C_2}{C_1}\right| \times 100 \qquad \text{(C8-4)}$$

where C_1 is the initial measurement and C_2 is the second or other additional measurement.

Accuracy

Accuracy is the degree of agreement between a measured analyte concentration (or the average of replicate measurements of a single analyte concentration) and the true or known concentration. Accuracy is determined as the percent recovery (%R).

For situations where a standard reference material is used, the %R is calculated as follows:

$$\%R = \frac{C_m}{C_{srm}} \times 100 \qquad \text{(C8-5)}$$

where C_m is the measured concentration value obtained by analyzing the sample and C_{srm} is the "true" or certified concentration of the analyte in the sample.

For measurements where matrix spikes are used, the %R is calculated as follows:

$$\%R = \frac{S - U}{C_{sc}} \times 100 \qquad \text{(C8-6)}$$

where S is the measured concentration in the spiked aliquot, U is the measured concentration in the unspiked aliquot, and C_{sc} is the actual concentration of the spike added.

Method Detection Limit

The method detection limit (MDL) is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The MDL for all quantitative measurements (except for those using Fourier Transform Infared Spectroscopy [FTIRS]) is defined as follows:

$$MDL = t_{(n-1,1-\alpha=.99)} \times s \qquad \text{(C8-7)}$$

where $T_{(n-1,1-\alpha=.99)}$ is the t-distribution value appropriate to a 99 percent confidence level and a standard deviation estimate with n-1 degrees of freedom, n is the number of observations, and s is the standard deviation of replicate measurements.

For headspace-gas analysis using FTIRS, MDL is defined as follows:

$$\mathbf{MDL = 3s} \qquad \text{(C8-8)}$$

where s is the standard deviation. Initially, a minimum of seven samples of ambient air or seven blanks must be used to establish the MDLs. MDLs should be constantly updated using the results of the laboratory control sample or on-line control sample.

Completeness

Completeness is a measure of the amount of valid data (i.e., data that meets all Quality Assurance/Quality Control (QA/QC) requirements) obtained from the overall measurement system compared to the amount of data collected and submitted for analysis. Completeness must be expressed as the number of samples analyzed with valid results as a percent of the

total number of samples submitted for analysis. Completeness, expressed as the percent complete (%C), is calculated as follows:

$$\%C = \frac{V}{n} \times 100 \qquad \text{(C8-9)}$$

where V is the number of valid analytical results obtained and n is the number of samples submitted for analysis.

Comparability

Comparability is the degree to which one data set can be compared to another. Comparability of data generated at different sites will be assured through the use of standardized, approved testing, sampling, and analytical techniques and by meeting the QAOs specified in Sections C8-2 through C8-9. The techniques presented in Sections C8-2 through C8-9 are provided in detail in the Quality Assurance Program Plan (QAPP) and in the Transuranic Waste Characterization Sampling and Analysis Methods Manual (Methods Manual) (DOE,1995).

Representativeness

Representativeness is the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter that concerns the proper design of the sampling program.

C8-2 Headspace-Gas Sampling

Quality Assurance Objectives

Headspace-gas sampling may occur from three areas within drums of transuranic (TRU) waste (see Figure C6-1): 1) the drum headspace (i.e., the headspace directly under the drum lid), 2) the 55-gallon (gal) (208-liter [L]) polyethylene (poly) bag headspace, and 3) the headspace of the innermost layers of confinement. The precision and accuracy of the drum headspace-gas sampling operations must be assessed by analyzing field QC headspace-gas samples. These samples must include equipment blanks, field reference standards, field blanks, and field duplicates. If the QAOs described below are not met, a nonconformance report must be prepared, submitted, and resolved.

Precision

The precision of the headspace-gas sampling and analysis operation must be assessed by simultaneous collection of field duplicates for VOCs determination. Corrective actions must be taken if the RPD exceeds 25 percent.

Accuracy

A field reference standard must be collected using headspace-gas sampling equipment to assess the accuracy of the headspace-gas sampling operation. Corrective action must be taken if the %R of the field-reference standard is less than 70 or greater than 130.

Completeness

Sampling completeness shall be expressed as the number of valid samples collected as a percent of the total number of samples collected. Participating sampling facilities must achieve a minimum 90 percent completeness. The amount and type of data that may be lost during the headspace-gas sampling operation cannot be predicted in advance. The importance of any lost or contaminated headspace-gas samples must be evaluated by the Site Project QA Officer, and corrective action must be taken as appropriate.

Comparability

Consistent use and application of uniform procedures and equipment, as specified in the Methods Manual, should ensure that headspace gas sampling operations are comparable when sampling different layers of confinement and at the different sampling facilities.

Representativeness

Specific headspace-gas sampling steps to ensure samples are representative include:

- A sample canister cleaning and leak check
- Sampling equipment cleaning or disposal after use
- Sampling equipment leak check
- Use of sample canisters with passivated internal surfaces
- Use of low-internal-volume sampling equipment
- Collection of small-sample volume: low-sample volume to available headspace volume ratio
- Careful pressure regulation
- Performance audits
- Collection of equipment blanks, field reference standard, field blanks, and field duplicates

C8-3 Sampling of Homogenous Solids and Soils/Gravel

Quality Assurance Objectives

To ensure that sampling is conducted in a representative manner on a waste-stream basis for waste containers containing homogenous solids and soil/gravel, samples must be collected randomly in both the horizontal and vertical planes of each container's waste. For waste containers that contain homogenous solids and soil/gravel in smaller containers (e.g., 1 gal [4.0 L] poly bottles) within the waste container, one randomly chosen smaller container must be sampled.

Precision

Sampling precision must be determined by collecting and sampling field duplicates (e.g., co-located cores as described in Appendix C4-2.2) once per sampling batch or once per week during sampling operations, whichever is more frequent. A sampling batch is a suite of homogenous solids and soil/gravel samples collected consecutively using the same sampling equipment within a specific time period. A sampling batch can be up to 20 samples (including field QC samples), all of which must be collected within 14 days of the first sample in the batch. The RPD between co-located samples must be calculated and reported by the Site Project QA Officer.

The recommended method for establishing acceptance criteria for co-located cores is development of control charts for the RPD in the cores. Control charts will be developed for each constituent and for each waste matrix or waste type (e.g., pyrochemical salts or organic sludges), as needed, using historical analysis results. The historical analysis results currently do not exist, but would be collected over the course of future waste characterization activities. RPDs for at least 25 to 30 pairs of co-located cores would be used in the construction of the control charts. The limits for the control chart will be three standard deviations above or below the average RPD. Once constructed, RPDs for additional co-located pairs will be compared with the control chart to determine whether or not the co-located cores are acceptable. Periodically, the control charts will be updated using all available data.

In order to establish acceptance criteria to be used at the beginning of waste characterization activities, the variance between co-located cores will be compared to the variance measured within the waste stream (exclusive of containers with co-located core measurement) using a statistical test. The test will be performed for each constituent in each waste stream. The test is not considered sensitive and is presented as an interim method until the preferred method of control charting is established. Because of the expected difference between the co-located core variance and the waste stream variance, the test will rarely reject the hypothesis that the co-located core variance is less than the waste stream variance. However, without sufficient data to develop control charts and without established acceptance criteria for field duplicates (i.e., as specified by SW-846), the interim method is a reasonable approach for evaluating co-located cores.

The statistical test will involve calculating the variance for co-located cores by pooling the variances computed for each pair of co-located cores. The variance for the waste stream will be computed excluding any data from drums with co-located cores, because the test requires

the variance estimates to be independent. All data must be transformed to normality prior to computing variances and performing the test. The test hypothesis is evaluated using the F distribution and the method for testing the difference in variances. The method will be replaced with the control charting method once sufficient data are available.

Accuracy

Sampling accuracy shall not be measured. Because waste containers containing homogenous solids and soil/gravel with known quantities of analytes are not available, sampling accuracy cannot be determined. However, sampling methods and requirements described are designed to minimize sample degradation and hence maximize sampling accuracy.

Completeness

Sampling completeness shall be expressed as the number of valid samples collected as a percent of the total number of samples collected. Participating sampling facilities must achieve a minimum 90 percent completeness.

Comparability

Consistent use and application of uniform procedures, sampling equipment, and measurement units must ensure that sampling operations are comparable. The analysis results of field duplicates (samples taken of the same medium, under the same conditions, using the same procedures) are examined to determine the comparability. In addition, laboratories analyzing samples must participate in the Performance Demonstration Program (PDP).

Representativeness

Specific steps to ensure the representativeness of samples include the following for both waste containers and smaller containers:

- Coring tools and sampling equipment must be clean prior to sampling.
- The entire depth of the waste must be cored, and the core collected must have a length greater than or equal to 50 percent of the depth of the waste. This is called the core recovery and is calculated as follows:

$$\textit{Core recovery (percent)} = \frac{y}{x} * 100 \qquad \text{(C8-10)}$$

where

x = the depth of the waste in the container
y = the length of the core collected from the waste.

- Coring operations and tool selection should be designed to minimize alteration of the in-place waste characteristics. Minimal waste disturbance must be verified by visually examining the core and describing the observation (e.g., undisturbed, cracked, or pulverized) in the field logbook.

If core recovery is less than 50 percent of the depth of the waste, a second coring location shall be randomly selected. The most representative core shall be used for sample collection.

C8-4 Radiography

Quality Assurance Objectives

The QAOs for radiography are detailed in this section. If the QAOs described below are not met, then corrective action, such as additional operator training must be taken. It should be noted that radiography does not have a specific MDL because it is primarily a qualitative determination. The objective of radiography for the program is to verify the waste matrix parameters for each waste container and to estimate each waste material parameter weight (Table C8-1). All activities required to achieve these objectives must be described in the site quality assurance project plan (QAPjP) and standard operating procedures (SOP).

Data to meet these objectives must be obtained from an audio/videotaped scan provided by trained radiography operators at the sites. Results must also be recorded on a radiography data form. The precision, accuracy, completeness, and comparability objectives for radiography data are presented below.

Precision

The qualitative determinations, such as verifying the waste matrix code, made during radiography do not lend themselves to statistical evaluation of precision. However, comparison of data derived from radiography and visual examination on the same waste containers at the Rocky Flats Environmental Technology Site and the Idaho National Engineering Laboratory indicates that radiography operators can provide estimated inventories and weights of waste items in a waste container. As a measure of precision, the Site Project QA Officer shall calculate and report the RPD between the estimated waste material parameter weights as determined by radiography and these same parameters as determined by visual examination.

Accuracy

The accuracy with which the waste matrix code and waste material parameter weights can be determined must be documented through visual examination of a randomly selected statistical portion of waste containers. The percentage of waste containers that require assignment to a

different waste matrix code after visual examination must be calculated and reported by the Site Project QA Officer as a measure of radiography accuracy.

Completeness

An audio/videotape of the radiography examination and a validated radiography data form will be obtained for 100 percent of the retrievably stored waste containers in the program.

Comparability

The comparability of radiography data from different sites shall be enhanced by using standardized radiography procedures and operator qualifications.

C8-5 Gas Volatile Organic Compound Analysis

Quality Assurance Objectives

The development of data quality objectives (DQO) specifically for this program has resulted in the QAOs listed in Table C8-2. The specified QAOs represent the required quality of data necessary to draw valid conclusions regarding program objectives. Program-required limits, such as the program required quantitation limits (PRQL) associated with VOC analysis, are specified to ensure that the analytical data collected satisfy the requirements of all data users. A summary of the Quality Control Samples and the associated acceptance criteria is included in Table C8-3. Key data-quality indicators for laboratory measurements are defined below.

Precision

Precision shall be assessed by analyzing laboratory duplicates and replicate analyses of laboratory-control samples and PDP blind-audit samples. Results from measurements on these samples must be compared to the criteria listed in Table C8-2. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Accuracy

Accuracy as %R shall be assessed for the laboratory operations by analyzing PDP blind audit samples and laboratory-control samples. Results from these measurements must be compared to the criteria listed in Table C8-2. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Method Detection Limit

MDLs shall be expressed in nanograms for VOCs and must be less than or equal to those listed in Table C8-2. MDLs shall be determined based on the method described in the QAPP. The detailed procedures for MDL determination shall be included in site SOPs.

Program Required Quantitation Limit

Laboratories must demonstrate the capability to quantitate analytes at or below the PRQLs given in Table C8-2. Laboratories shall set the concentration of at le[illegible] the calibration standard below the PRQL. The detailed procedures for PRQL demonstration shall be included in laboratory SOPs.

Completeness

Laboratory completeness shall be expressed as the number of samples analyzed with valid results as a percent of the total number of samples submitted for analysis. Participating laboratories must meet the completeness specified in Table C8-2.

Comparability

For VOC analysis, data generated through analysis of samples from different sites shall be comparable. Comparability will be achieved by using standardized methods and traceable standards and by requiring all sites to participate in the PDP.

Representativeness

Representativeness for VOC analysis shall be achieved by collecting sufficient numbers of samples using clean sampling equipment that does not introduce sample bias. Samples must be collected as described in Appendix C4.

C8-6 Total Volatile Organic Compound Analysis

Quality Assurance Objectives

The development of DQOs specifically for this program has resulted in the QAOs listed in Table C8-4. The specified QAOs represent the required quality of data necessary to draw valid conclusions regarding program objectives. Program-required limits such as the PRQL associated with VOC analysis, are specified to ensure that the analytical data collected satisfy the requirements of all data users. Key data-quality indicators for laboratory measurements are defined below.

Precision

Precision shall be assessed by analyzing laboratory duplicates, replicate analyses of laboratory-control samples, matrix-spike duplicates, and PDP blind-audit samples. Results from measurements on these samples must be compared to the criteria listed in Table C8-4. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Accuracy

Accuracy as %R shall be assessed for the laboratory operations by analyzing laboratory control samples, matrix spikes, surrogate compounds, and PDP blind-audit samples. Results from these

measurements must be compared to the criteria listed in Table C8-5. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Method Detection Limit

MDLs shall be expressed in milligrams per kilogram (mg/kg) for VOCs and must be less than or equal to those listed in Table C8-4. The detailed procedures for MDL determination shall be included in site SOPs.

Program Required Quantitation Limit

Laboratories must demonstrate the capability to quantitate analytes in samples at or below the PRQLs given in Table C8-4. Laboratories shall set the concentration of at least one calibration standard below the PRQL. The detailed procedures for PRQL demonstration shall be included in laboratory SOPs.

Completeness

Laboratory completeness shall be expressed as the number of samples analyzed with valid results as a percent of the total number of samples submitted for analysis. Participating laboratories must meet the completeness specified in Table C8-4.

Comparability

For VOC analysis, data generated through analysis of samples from different sites shall be comparable. Comparability will be achieved by using standardized methods and traceable standards and by requiring all sites to participate in the PDP.

Representativeness

Representativeness for VOC analysis shall be achieved by collecting unbiased samples. Samples must be collected as described in Appendix C4.

C8-7 Total Semivolatile Organic Compound Analysis

Quality Assurance Objectives

The development of DQOs specifically for this program has resulted in the QAOs listed in Table C8-6. The specified QAOs represent the required quality of data necessary to draw valid conclusions regarding program objectives. Program-required limits, such as the PRQLs, are specified to ensure that the analytical data collected satisfy the requirements of all data users. A summary of Quality Control Samples and associated acceptance criteria for this analysis is included in Table C8-7. Key data-quality indicators for laboratory measurements are defined below.

Precision

Precision shall be assessed by analyzing laboratory duplicates, replicate analyses of laboratory control samples, matrix spike duplicates, and PDP blind-audit samples. Results from measurements on these samples must be compared to the criteria listed in Table C8-7. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Accuracy

Accuracy, as %R, shall be assessed for the laboratory operations by analyzing laboratory-control samples, matrix spikes, surrogate compounds, and PDP blind-audit samples. Results from these measurements must be compared to the criteria listed in Table C8-7. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Method Detection Limit

MDLs shall be expressed in mg/kg for SVOCs and must be less than or equal to those listed in Table C8-6. The detailed procedures for MDL determination shall be included in site SOPs.

Program Required Quantitation Limit

Laboratories must demonstrate the capability to quantitate analytes in samples at or below the PRQLs given in Table C8-6. Laboratories shall set the concentration of at least one calibration standard below the PRQL. The detailed procedures for PRQL demonstration shall be included in laboratory SOPs.

Completeness

Laboratory completeness shall be expressed as the number of samples analyzed with valid results as a percent of the total number of samples submitted for analysis. Participating laboratories must meet the level of completeness specified in Table C8-6.

Comparability

For SVOC analysis, data generated through analysis of samples from different sites shall be comparable. Comparability will be achieved by using standardized methods and traceable standards and by requiring all sites to participate in the PDP.

Representativeness

Representativeness for SVOC analysis shall be achieved by collecting unbiased samples. Samples must be collected as described in Appendix C4.

C8-8 Total Metal Analysis

Quality Assurance Objectives

The development of DQOs for the program has resulted in the QAOs listed in Table C8-8. The specified QAOs represent the required quality of data necessary to draw valid conclusions regarding program objectives. Program-required limits, such as the PRQLs associated with metal analysis, are specified to ensure that the analytical data collected satisfy the requirements of all data users. A summary of Quality Control Samples and the associated acceptance criteria for this analysis is provided in Table C8-9. Key data-quality indicators for laboratory measurements are defined below.

Precision

Precision shall be assessed by analyzing laboratory matrix spike duplicates, replicate analyses of laboratory-control samples, and PDP blind-audit samples. Results from measurements on these samples must be compared to the criteria listed in Table C8-8. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Accuracy

Accuracy shall be assessed through the analysis of laboratory matrix spikes, PDP blind-audit samples, and laboratory-control samples. Results from these measurements must be compared to the criterion listed in Table C8-8. These QC measurements will be used to demonstrate acceptable method performance and to trigger corrective action when control limits are exceeded.

Program Required Detection Limits

PRDLs, expressed in units of micrograms per L (μg/L), are the maximum values for instrument detection limits (IDL) permissible for program support under the QAPP. IDLs must be less than or equal to the PRDL for the method used to quantitate a specific analyte. Any method listed in Table C-11 of the application may be used if the IDL meets this criteria. For high concentration samples, an exception to the above requirements may be made in cases where the sample concentration exceeds five times the IDL of the instrument being used. In this case, the analyte concentration may be reported even though the IDL may exceed the PRDL. IDLs shall be determined semiannually (i.e., every six months). Detailed procedures for IDL determination shall be included in laboratory SOPs.

Program Required Quantitation Limit

Laboratories must demonstrate the capability of analyte quantitation at or below the PRQLs in units of mg/kg dry weight (given in Table C8-8). The PRDLs are set an order of magnitude less than the PRQLs (assuming 100 percent solid sample diluted by a factor of 100 during preparation). Laboratories shall set the concentration of at least one QC or calibration standard

at or below the solution concentration equivalent of the MQL. Detailed calibration procedures shall be included in site SOPs.

Completeness

Laboratory completeness shall be expressed as the number of samples analyzed with valid results as a percent of the total number of samples submitted for analysis. Participating laboratories must meet the completeness specified in Table C8-8.

Comparability

Data generated through analysis of samples from different sites shall be comparable. Comparability will be achieved by using standardized methods and traceable standards and by requiring all sites to participate in the PDP.

Representativeness

Representativeness for metals analysis shall be achieved by the collection of unbiased samples. Samples must be collected as described in Appendix C4.

C8-9 Acceptable Knowledge

Acceptable knowledge documentation provides primarily qualitative information that cannot be assessed according to specific data quality goals that are used for analytical techniques. QAOs for analytical results are described in terms of precision, accuracy, completeness, comparability, and representativeness. Analytical results will be used to confirm the characterization of wastes based on acceptable knowledge (Section C9-4). To ensure that the acceptable knowledge process is consistently applied, sites must comply with the following data quality requirements for acceptable knowledge documentation:

- Precision - Precision is the agreement among a set of replicate measurements without assumption of the knowledge of a true value. The qualitative determinations, such as compiling and assessing acceptable knowledge documentation, do not lend themselves to statistical evaluations of precision. However, the acceptable knowledge information will be addressed by the independent review of acceptable knowledge information during internal and external audits.

- Accuracy - Accuracy is the degree of agreement between an observed sample result and the true value. The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different hazardous waste codes based an the reevaluation of acceptable knowledge and sampling and analysis data will be reported as a measure of acceptable knowledge accuracy.

- Completeness - Completeness is an assessment of the number of waste streams or number of samples collected to the number of samples determined to be useable through the data validation process. The acceptable knowledge record

must contain 100 percent of the required information (Section C9-3). The useability of the acceptable knowledge information will be assessed for completeness during audits.

- Comparability - Data are considered comparable when one set of data can be compared to another set of data. Comparability is ensured through sites meeting the training requirements and complying with the minimum standards outlined for procedures that are used to implement the acceptable knowledge process. All sites must assign hazardous waste codes in accordance with Section C9-4 and provide this information regarding its waste to other sites who store or generate a similar waste stream.

- Representativeness - Representativeness expresses the degree to which sample data accurately and precisely represent characteristics of a population. Representativeness is a qualitative parameter that will be satisfied by ensuring that the process of obtaining, evaluating, and documenting acceptable knowledge information is performed in accordance with the minimum standards established in Section C9-4. Sites also must assess and document the limitations of the acceptable knowledge information used to assign hazardous waste codes (e.g., purpose and scope of information, date of publication, type and extent to which waste parameters are addressed).

Each site must address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of acceptable knowledge confirmation through radiography, headspace-gas analyses, and solidified waste analyses. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by quality assurance organizations and assessments by auditors external to the organization (i.e., DOE/CAO).

C8-10 Data Review, Validation, and Verification Requirements

Data review, validation, and verification requirements include procedures for the review, validation, and verification of data at the data generation level; the validation and verification of data at the project level; and the verification of data at the CAO level. Data review determines if raw data have been properly collected and ensures raw data are properly reduced. Requirements for data reduction are provided in Sections 9.0 through 15.0 of the QAPP, as appropriate, and in the Methods Manual. Data validation confirms that the data reported satisfy the requirements defined by the user and is accompanied by signature release. Data verification authenticates that data are in fact that which is claimed. The procedures presented in this section ensure that Program records furnish documentary evidence of quality.

Data Generation Level

The following are minimum requirements for raw data collection and management:

- All raw data shall be signed and dated in black ink by the person generating it.

- All data must be recorded clearly, legibly, and accurately in field and laboratory records (bench sheets, logbooks), and include applicable sample identification numbers.

- All changes to original data must be lined out, initialed, and dated by the individual making the change. A justification for changing the original data may also be included. Original data must not be obliterated or otherwise disfigured so as not to be readable.

- All data must be transferred and reduced from field and laboratory records completely and accurately.

- All field and laboratory records must be maintained in permanent files according to NEIC guidelines.

- Data must be organized into a standard format for reporting purposes (testing, sampling, analytical or on-line batch data report), as outlined in specific sampling and analytical techniques.

- All electronic and video data must be stored appropriately to ensure that waste container, sample, and associated QC data are readily retrievable.

Data review, validation, and verification at this level involves scrutiny and signature release from qualified independent technical reviewer(s), technical supervisors(s), and a QA officer, as specified below. Any nonconformance identified during this process shall be documented on a nonconformance report (Section C8-13). Facilities may combine the positions of independent technical reviewer and QA officer. Individuals conducting this data review, validation, and verification must use checklists that address all of the items included in this section. Checklists must contain tables showing the results of sampling, analytical or on-line batch QC samples, if applicable. Completed checklists must be forwarded with testing, sampling, analytical and on-line batch data reports to the project level.

- One hundred percent of the batch data reports must receive an independent technical review. This review shall be performed by an individual other than the data generator who is qualified to have performed the initial work. The reviewer(s) must release the data as evidenced by signature, and as a consequence ensure the following:

  - Data generation and reduction were conducted in a technically correct manner in accordance with the methods used. Data were reported in the proper units and correct number of significant figures.

  - Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or 100 percent check of all hand calculations.

  - All variances from an accepted method and the rationale for the variations have been documented and approved (Section C8-13).

- The data have been reviewed for transcription errors.

- The testing, sampling, or analytical data QA documentation (testing batch, sampling batch, analytical or on-line batch) is complete and includes raw data, calculation records, chain-of-custody (COC) forms, calibration records, QC sample results, and gas canister sample tags (if applicable).

- QC sample results are within established control limits, and if not, the data have been appropriately qualified.

- Reporting flags were assigned correctly.

- Sample holding time and preservation requirements were met, or exceptions documented.

- Radiography tapes have been reviewed, at a minimum for every tenth waste container, against the data reported on the radiography form to ensure that the data are correct and complete.

- Field sampling records are complete.

• One hundred percent of the batch data reports must receive technical supervisory signature release for each testing batch, sampling batch, analytical batch and on-line batch. This release must ensure the following:

  - The data are technically reasonable based on the technique used.

  - All data have received independent technical review with the exception of radiography tapes, which shall receive periodic technical review as specified above.

  - The testing, sampling, or analytical data QA documentation (testing batch, sampling batch, analytical batch or on-line batch) is complete and includes raw data, calculation records, COC forms, calibration records, QC sample results, and gas sample canister tags (if applicable).

  - Sample holding time requirements were met, or exceptions documented.

  - Field sampling records are complete.

• One hundred percent of the batch data reports must receive QA officer signature release. This release must ensure the following:

  - Independent technical and technical supervisory reviews have been performed as evidenced by the appropriate signature releases.

- The testing, sampling, or analytical data QA documentation (testing batch sampling batch, analytical batch or on-line batch) is complete as appropriate for the point of data generation (i.e., radiography, RA, sampling, and analysis).

- Sampling and analytical QC checks have been properly performed. QC criteria that were not met are documented.

- QAOs have been met according to the methods outlined in Section C8-11.

Project Level

Data validation and verification at this level involves scrutiny and signature release from the Site Project Manager (or designee) and the Site Project QA Officer (or designee). This must be accomplished by meeting the following minimum requirements for each waste container. Any nonconformance identified during this process shall be documented on a nonconformance report (Section C8-13).

- One hundred percent of the testing, sampling, and analytical batch data reports must have Site Project Manager signature release. This signature release must ensure the following:

  - Data generation level independent technical, technical supervisory, and QA officer review, validation, and verification have been performed as evidenced by the appropriate signature releases.

  - Testing, sampling, analytical and on-line batch data review checklists are complete.

  - Testing, sampling, analytical and on-line batch data reports are complete and data are properly reported (e.g., data are reported in the correct units, with the correct number of significant figures, and with qualifying flags).

  - Reconciliation with the DQOs was performed (Section C8-12).

- One hundred percent of the testing, sampling, and analytical batch data reports must receive Site Project QA Officer signature release. This signature release must ensure the following:

  - Sampling batch QC checks (e.g., equipment blanks, field duplicates, field reference standards) were properly performed, and meet the established QAOs.

  - Testing batch QC checks (e.g., replicate scans, measurement system checks, replicate counts) were properly performed.

- Analytical batch QC checks (e.g., laboratory duplicates, laboratory blanks, matrix spikes, matrix spike duplicates, laboratory control samples) were properly performed and meet the established QAOs.

- On-line batch QC checks (e.g., field blanks, on-line blanks, on-line duplicates, on-line control samples) were properly performed and meet the established QAOs.

- Proper procedures were followed to ensure representative samples of headspace gas and homogenous solids and soil/gravel were taken.

- Radiography data are complete and acceptable based on the videotape review of one waste container per testing batch, at a minimum.

- RA data are complete and acceptable.

• The Site Project Manager and Site Project QA Officer shall ensure that a repeat of the data generation level review, validation, and verification is performed on the data for a minimum of one randomly chosen waste container quarterly (every three months). This exercise will document that the data generation level review, validation, and verification is being performed according to implementing procedures.

In association with the project-level validation and verification described above, the Site Project QA Officer (or designee) must prepare a Site Project QA Officer Summary and the Site Project Manager (or designee) must prepare a Data Validation Summary. The Site Project QA Officer Summary includes, on a per waste container basis, a validation checklist for each testing, sampling, analytical and on-line batch. Checklists for the Site Project QA Officer Summary must be sufficiently detailed to validate all aspects of a testing, sampling, analytical or on-line batch that affect data quality. The Data Validation Summary provides confirmation that, on a per waste container basis, all data have been validated in accordance with the site QAPjP. The Data Validation Summary must list each testing, sampling, analytical or on-line batch, describe how the validation was performed and whether or not problems were detected, and include a statement indicating that all data are acceptable.

Once the data have received project-level validation and verification, the Site Project Manager must ensure that the laboratory is notified. Samples must be retained by the laboratory until this notification is received. Gas sample canisters may then be released from storage for cleaning, recertification, and subsequent reuse. Sample tags must be removed and forwarded to the Site Project QA Officer before recycling the canisters. If the site project manager requests that samples or canisters be retained for future use (e.g., an experimental holding time study), the same sample identification and COC forms shall be used and cross-referenced to a document which specifies the purpose for sample or canister retention.

CAO Level

The third and final level of data verification occurs at CAO and must, at a minimum, consist of an inventory check of the data packages to verify completeness. The CAO Office of Regulatory Compliance manager is responsible for the verification that data packages include the following:

- Project-level signature releases
- Listing of all waste containers being reported in the package
- Listing of all testing, sampling, and analytical batch numbers associated with each waste container being reported in the package
- Data package case narrative
- Site Project QA Officer Summary
- Data Validation Summary
- Complete summarized qualitative and quantitative data for all waste containers

The CAO Office of Regulatory Compliance manager must verify that each data package is complete and notify the originating site in writing of the acceptance status of the data within two weeks of data package receipt. CAO will maintain the data as appropriate for use in the regulatory compliance programs.

C8-11 Reconciliation with Data Quality Objectives

Reconciling the results of waste testing and analysis with the DQOs provides a way to ensure that data will be of adequate quality to support the regulatory compliance programs. Reconciliation with the DQOs will take place at both the project level and the CAO level. At the project level, reconciliation will be performed by the Site Project Manager; at CAO, reconciliation will be performed by the CAO Office of Regulatory Compliance manager.

Reconciliation at the Project Level

The Site Project Manager will ensure that all data generated and used in decision making meet the DQOs provided in Section C-4d of the text of Chapter C. To do so, the Site Project Manager must assess whether data of sufficient type, quality, and quantity have been collected. The Site Project Manager must determine if the variability of the data set is small enough to provide the required confidence in the results. The Site Project Manager must also determine if, based on the desired error rates and confidence levels, a sufficient number of valid data points have been determined. In addition, the Site Project Manager must document that random sampling of containers was performed for the purposes of waste stream characterization.

For each waste stream characterized, the Site Project Manager must determine if sufficient data have been collected to determine the following Program-required waste parameters:

- Waste matrix code
- Waste material parameter weights
- Average mass and activity of each radionuclide of concern
- If each waste container of waste is TRU radioactive waste
- Average concentration of hydrogen, methane, and each VOC in the headspace gas of waste containers in the waste stream
- The potential flammability of TRU waste headspace gases
- Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, and number of samples collected for VOCs, SVOCs, and metals in the waste stream
- Whether the waste stream exhibits a toxicity characteristic (TC) under 40 CFR Part 261, Subpart C
- Whether the waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level
- Whether a sufficient number of waste containers have been visually examined to determine with a reasonable level of certainty that the UCL_{90} for the miscertification rate is less than 14 percent

If the Site Project Manager determines that insufficient data have been collected to make the determinations listed above, additional data collection efforts must be undertaken.

The statistical procedure presented in Appendix C6 shall be used by participating Site Project Managers to evaluate and report waste characterization data from the analysis of homogenous solids and soil/gravel. The procedure, which calculates UCL_{90} values, shall be used to assess compliance with the DQOs in Section 1.5 as well as with RCRA regulations. The procedure must be applied to all laboratory analytical data for total VOCs, total SVOCs, and total metals. For RCRA regulatory compliance (40 CFR § 261.24), data from the analysis of the appropriate metals and organic compounds shall be compared to the TC levels expressed as total values. These total values will be considered the regulatory threshold limit (RTL) values for the Program. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a TC analyte that would give the regulatory weight/volume concentration (in the toxicity characteristic leaching procedure (TCLP) extract), assuming 100-percent analyte dissolution.

Reconciliation at the CAO Level

CAO must also ensure that data of sufficient type quality, and quantity have been collected to meet Program DQOs. The CAO Office of Regulatory Compliance manager is responsible for determining if sufficient data have been collected to determine the following:

- The concentration of VOC constituents in the headspace in the total waste inventory has not exceeded the environment performance standards of 20 NMAC 4.1, Subpart V, 264.601 (b);

- An inventory of radioactive materials and physical waste forms to support an assessment of repository performance;

- Whether waste streams proposed for disposal in WIPP have been adequately characterized; and

- Whether data supports the preparation of the WIPP RCRA permit application, the WIPP facility 40 CFR Part 191 Certification Application, and a revised safety analysis report for the TRUPACT-II.

C8-12 Data Reporting Requirements

Data reporting requirements define the type of information and the method of transmittal for data transfer from the data generation level to the project level and from the project level to CAO.

Data Generation Level

Data shall be transmitted by hard copy or electronically (provided a hardcopy is available on demand) from the data generation level to the project level. Transmitted data shall include all testing, sampling, and analytical batch data reports, and data review checklists. The report forms and checklists used must contain all of the information required by the testing, sampling, and analytical techniques described in Sections 7.0 through 15.0 of the QAPP, as well as the signature releases to document the review, validation, and verification as described in Section C8-10. All testing, sampling, and analytical batch data reports and checklists shall be on approved forms, as provided in site-specific documentation.

Testing, sampling, and analytical batch data reports shall be forwarded to the site project office. Site QAPjPs shall specify the individual at the site project office who will receive these reports. Testing batch data reports shall be forwarded to the site project office within 28 days of the

testing of the last waste container in a testing batch. Sampling batch data reports shall be forwarded to the site project office within 28 days of sample collection of the last sample in a sampling batch. Analytical batch data reports shall be forwarded to the site project office within 28 days of the VTSR of the last sample in an analytical batch. After review by the Site Project QA Officer, all batch data reports will be forwarded to the Site Project Manager. All testing, sampling, and analytical batch data reports shall be assigned serial numbers, and each page shall be numbered at the bottom. The serial number used for data reports can be the same as the testing, sampling, or analytical batch number.

QA documentation shall be maintained in either testing, sampling, and analytical facility files, or site project files for those facilities located on sites. Contract waste operation facilities shall forward testing, sampling, and analytical QA documentation along with testing, sampling, and analytical batch data reports to the site project office for inclusion in site central files.

Project Level

There are two aspects to project level reporting. First, summarized testing, sampling, and analytical data must be reported on a per-waste container basis. Second, summarized characterization information must be reported on a waste stream basis.

Summarized testing, sampling, and analytical data shall be transmitted by hard copy or electronically from the Site Project Manager to CAO when requested. Participating sites shall combine data from individual waste containers into data packages for reporting. Hard copy or electronic data packages shall consist of the following:

- Cover page with the site name, program identification, waste container numbers for containers included in the data package, and release signatures of the Site Project Manager and Site Project QA Officer

- Table of contents; and

- A concise narrative that summarizes the results of the project-level review and briefly describes any problems or other noteworthy items of interest associated with the data (i.e., nonconformance reports, operational variances). The narrative shall include separate sections which address results of duplicates/replicates and nonconformance reports associated with the waste containers being reported in the package.

For each waste container being reported in the data package, the following information shall be included:

- Cover page with the site name, program identification, waste container number, and approval/release signatures of the Site Project Manager and Site Project QA Officer

- A table that relates sample numbers (testing, sampling, and analytical) to waste container number

- Table of contents
- Site Project QA Officer Summary
- Data Validation Summary
- Radiography results
- Radioassay (RA) results
- Waste container headspace gas hydrogen, methane, and VOC analytical results
- Innermost layer of confinement headspace gas hydrogen, methane, and VOC analytical results for waste containers with inner layers of confinement (if applicable)
- Total VOC, SVOC. and metal analytical results for homogenous solids and soil/gravel (if applicable)

WIPP Waste Information System (WWIS) Data Reporting

The WWIS Data Dictionary (Appendix C13) contains all of the data fields, the field format and the limits associated with the data as established by various waste acceptance criteria. This data will be subjected to edit and limit checks that are performed automatically by the database.

WIPP will coordinate the data transmission with each generator site using the Internet and the TCP/IP transmission protocol. Actual data transmission will use DES encryption technology to ensure the integrity of the data transmissions. The sites with large waste inventories and large databases will populate a data structure provided by WIPP that contains the required data dictionary fields that are appropriate for the waste stream (or waste streams) at that site. For example, totals analysis data will not be requested from sites that do not have homogeneous solids or soil/gravel waste. WIPP will access this data via the Internet to ensure an efficient transfer of this data. Small quantity sites will be given a similar data structure that is tailored to their types of waste. Sites with very small quantities of waste will be provided with the ability to assemble the data interactively to this data structure on the WWIS.

C8-13 Nonconformances and Operational Variances

The status of work and the Program activities at participating sites shall be monitored and controlled by the Site Project Manager and Site Project QA Officer. This monitoring and control shall include: 1) nonconformance identification, documentation, and reporting; and 2) operational variance identification, documentation, and reporting.

Nonconformances

Nonconformances are uncontrolled and unapproved deviations from an approved plan, procedure, or expected result. Nonconforming items and activities are those that do not meet the Program requirements, procurement document criteria, or approved work procedures.

Nonconforming items shall be identified by marking, tagging, or segregating, and the affected organization(s) notified. Participating sites shall disposition nonconforming items as appropriate in accordance with the Quality Assurance Program Description (QAPD). Disposition of nonconforming items shall be identified and documented. The QAPjPs shall identify the person(s) responsible for evaluating and dispositioning nonconforming items and shall include referenced procedures for handling them.

Management at all levels shall foster a "no-fault" attitude to encourage the identification of nonconforming items and processes. Nonconformances may be detected and identified by anyone performing Program activities, including

- Project staff - during field operations, supervision of subcontractors, data validation and verification, and self-assessment
- Laboratory staff - during the preparation for and performance of laboratory testing; calibration of equipment; QC activities; laboratory data review, validation, and verification; and self-assessment
- QA personnel - during oversight activities or audits

A nonconformance report shall be prepared for each nonconformance identified. Each nonconformance report shall be initiated by the individual(s) identifying the nonconformance. The nonconformance report shall then be processed by knowledgeable and appropriate personnel. For this purpose, a nonconformance report including, or referencing as appropriate, results of laboratory analysis, QC tests, audit reports, internal memoranda, or letters shall be prepared. The nonconformance report must provide the following information:

- Identification of the individual(s) identifying or originating the nonconformance
- Description of the nonconformance
- Method(s) or suggestions for correcting the nonconformance (corrective action) or description of the variance granted
- Schedule for completing the corrective action
- An indication of the potential ramifications and overall useability the data, if applicable
- Any approval signatures specified in the QAPjPs

The Site Project QA Officer shall oversee the nonconformance report process and be responsible for developing a plan to identify and track all nonconformances and report this information to the DOE field office. Documentation of nonconformances shall be made available to the Site Project Manager, who in turn is responsible for notifying project personnel of the nonconformance. Completion of the corrective action for nonconformances must be verified by the Site Project QA Officer.

Operational Variances

Variances are approved and controlled changes to Program-related plans or procedures. The need for a variance is caused by the identification of improvement opportunities or unusual or nonroutine occurrences that affect operations but not the ability to achieve the performance standards or quality requirements specified in this QAPP or site QAPjPs. Each person performing Program activities is responsible for the quality of their work and adherence to the applicable requirements contained in this QAPP and site QAPjPs. When a need to deviate from established procedures is identified, it is the responsibility of the person performing the work to initiate a variance.

When a variance is required, the person identifying the need for the variation shall complete a Record of Variance and have a direct supervisor approve it. A Record of Variance must be completed and approved before initiation of the activity to document the variation from normal, approved procedures. The Site Project QA Officer shall assess the significance of the variance and determine if changes to the plans or procedures and further notifications are required.

A Record of Variance must contain at least the following information:

- Title or heading, "Record of Variance"
- Waste container or sample identification number
- Reason for the deviation from the requirements contained in the QAPjP or SOP
- A description of the variation from the accepted sampling, testing, or analytical procedure
- A description of special equipment or personnel required
- Initiator's signature and date
- Supervisor's signature and date
- Site Project Manager's signature and date
- Site Project QA Officer's signature and date

DOE/CAO Corrective Action Process

DOE/CAO initiates a corrective action process when internal nonconformances and nonconformances at the generator/storage sites are identified. Activities and processes that do not meet requirements are documented as deficiencies. All deficiencies regardless of type and origin are processed through the CAO corrective action process.

When a deficiency is identified by the CAO, the following process action steps are initiated:

- The condition is documented on a Corrective Action Report (CAR) by the individual identifying the problem.

- The CAO QA Manager and the National TRU Programs (NTP) Team Leader review the CAR, determine validity of the finding (determine that a requirement has been violated), classify the significance of the condition, assign a response due date, and issue the CAR to the responsible party.

- The responsible organization reviews the CAR, evaluates the extent and cause of the deficiency and provides a response to the CAO, indicating remedial actions and actions to preclude recurrence that will be taken.

- The CAO reviews the response from the responsible organization and, if acceptable, communicates the acceptance to the responsible organization.

- The responsible organization completes remedial actions and actions to preclude recurrence of the condition.

- After all corrective actions have been completed, the CAO schedules and performs a verification to assure that corrective actions have been completed and are effective. When all actions have been completed and verified as being effective, the CAR is closed by the CAO QA Manager and the NTP Team Leader.

- As part of the planning process for subsequent audits and surveillances, past deficiencies are reviewed and the previous deficient activity or process is subject to reassessment.

C8-14 Special Training Requirements and Certifications

Before performing activities that affect Program quality, all personnel are required to receive indoctrination into the scope, purpose, and objectives of the Program and the specific QAOs of the assigned task. Personnel assigned to perform activities for the Program shall have the education, experience, and training applicable to the functions associated with the work. Evidence of personnel proficiency and demonstration of competence in the task(s) assigned must be demonstrated and documented. All personnel designated to work on specific aspects of the Program shall maintain qualification (i.e., training and certification) throughout the duration of the work as specified in this QAPP and applicable QAPjPs. Job performance shall be evaluated and documented at periodic intervals, as specified in the QAPjPs.

Personnel involved in Program activities shall receive continuing training to ensure that job proficiency is maintained. Training includes both education in principles and enhancement of skills. Each participating site shall include in its QAPjP a description of the procedures for implementing personnel qualification and training in accordance with the QAPD and 10 CFR § 830.120. All training records that specify the scope of the training, the date of completion, and documentation of job proficiency shall be maintained in the site project file.

Analytical laboratory line management must ensure that analytical personnel are qualified to perform the analytical method(s) for which they are responsible. The minimum qualifications for certain specified positions for the Program are summarized in Table C8-10. QAPjPs, or their implementing SOPs, shall specify the site-specific titles and minimum training and qualification requirements for personnel performing Program activities. QAPjPs shall also contain the requirements for maintaining records of the qualification, training, and demonstrations of proficiency by these personnel.

An evaluation of personnel qualifications shall include comparing and evaluating the requirements specified in the job/position description and the skills, training, and experience included in the current resume of the person. This evaluation also must be performed for personnel who change positions because of a transfer or promotion as well as personnel assigned to short-term or temporary work assignments that may affect the quality of the Program. QAPjPs shall identify the responsible person(s) for ensuring that all personnel maintain proficiency in the work performed and identify any additional training that may be required.

TABLES

TABLE C8-1
WASTE MATERIAL PARAMETERS AND DESCRIPTIONS

Waste Material Parameter	Description
Iron-based Metals/Alloys	Iron and steel alloys in the waste; does not include the waste container materials
Aluminum-based Metals/Alloys	Aluminum or aluminum-based alloys in the waste materials
Other Metals	All other metals found in the waste materials
Other Inorganic Materials	Nonmetallic inorganic waste including concrete, glass, firebrick, ceramics, sand, and inorganic sorbents
Cellulosics	Materials generally derived from high-polymer plant carbohydrates; (e.g., paper, cardboard, wood, and cloth)
Rubber	Natural or man-made elastic latex materials; (e.g., surgeons' gloves, and leaded rubber gloves)
Plastics (waste materials)	Generally man-made materials, often derived from petroleum feedstock; (e.g., polyethylene and polyvinylchloride)
Organic Matrix	Cemented organic resins, solidified organic liquids and sludges
Inorganic Matrix	Any homogeneous materials consisting of sludge or aqueous-based liquids that are solidified with cement, calcium silicate, or other solidification agents; (e.g., wastewater treatment sludge, cemented aqueous liquids, and inorganic particulates)
Soils/gravel	Generally consists of naturally occurring soils that have been contaminated with inorganic waste materials
Steel (packaging materials)	55-gal (208-L) drums
Plastics (packaging materials)	90-mil polyethylene drum liner and plastic bags

TABLE C8-2
GAS VOLATILE ORGANIC COMPOUNDS TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy[a] (%R)	MDL[b] (ng)	FTIRS MDL[b] (ppmv)	PRQL (ppmv)	Completeness (%)
Benzene	71-43-2	≤25	70-130	10	5	10	90
Bromoform	75-25-2	≤25	70-130	10	5	10	90
Carbon tetrachloride	56-23-5	≤25	70-130	10	5	10	90
Chlorobenzene	108-90-7	≤25	70-130	10	5	10	90
Chloroform	67-66-3	≤25	70-130	10	5	10	90
1,1-Dichloroethane	75-34-3	≤25	70-130	10	5	10	90
1,2-Dichloroethane	107-06-2	≤25	70-130	10	5	10	90
1,1-Dichloroethylene	75-35-4	≤25	70-130	10	5	10	90
cis-1,2-Dichloroethylene	156-59-2	≤25	70-130	10	5	10	90
Ethyl benzene	100-41-4	≤25	70-130	10	10	10	90
Ethyl ether	60-29-7	≤25	70-130	10	5	10	90
Formaldehyde[c]	50-00-0	≤25	70-130	10		10	90
Hydrazine[d]	302-01-2	≤25	70-130	10		10	90
Methylene chloride	75-09-2	≤25	70-130	10	5	10	90
1,1,2,2-Tetrachloroethane	79-34-5	≤25	70-130	10	5	10	90
Tetrachloroethylene	127-18-4	≤25	70-130	10	5	10	90
Toluene	108-88-3	≤25	70-130	10	5	10	90
1,1,1-Trichloroethane	71-55-6	≤25	70-130	10	5	10	90
Trichloroethylene	79-01-6	≤25	70-130	10	5	10	90
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	≤25	70-130	10	5	10	90
m-Xylene[e]	108-38-3	≤25	70-130	10	5	10	90
o-Xylene	95-47-6	≤25	70-130	10	5	10	90
p-Xylene[e]	106-42-3	≤25	70-130	10	5	10	90
Acetone	67-64-1	≤25	70-130	150	50	100	90
Butanol	71-36-3	≤25	70-130	150	50	100	90
Methanol	67-56-1	≤25	70-130	150	50	100	90
Methyl ethyl ketone	78-93-3	≤25	70-130	150	50	100	90
Methyl isobutyl ketone	108-10-1	≤25	70-130	150	50	100	90

[a]Criteria apply to PRQL concentrations.
[b]Values based on delivering 10 mL to the analytical system.
[c]Required only for homogenous solids and soil/gravel from Los Alamos National Laboratory.
[d]Required only for homogenous solids and soil/gravel from Oak Ridge National Laboratory and the Savannah River Site.
[e]These xylene isomers cannot be resolved by GC/MS.

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value), for GC/MS and GC/FID; total number of nanograms delivered to the analytical system per sample (nanograms); for FTIRS based on 1m sample cell
PRQL = Program required quantitation limit (parts per million/volume basis)

TABLE C8-3
SUMMARY OF LABORATORY QUALITY CONTROL SAMPLES AND FREQUENCIES FOR GAS VOLATILE ORGANIC COMPOUND ANALYSIS

QC Sample	Minimum Frequency	Acceptance Criteria	Corrective Action[a]
Method performance samples	Seven (7) samples initially and four (4) semiannually	Meet method QAOs	Repeat until acceptable
Laboratory duplicates or on-line duplicates	One (1) per analytical batch for GC/MS and GC/FID. One (1) per analytical batch or on-line batch for FTIRS	RPD ≤ 25[b]	Nonconformance if RPD >25
Laboratory blanks or on-line blanks	Daily prior to sample analysis for GC/MS and GC/FID. Daily prior to sample analysis and one (1) per analytical batch or on-line batch for FTIRS.	Analyte amounts <3 x MDLs for GC/MS and GC/FID; <PRQL for FTIRS	Nonconformance if analyte amounts > 3 x MDLs for GC/MS and GC/FID; >PRQL for FTIRS
Laboratory control samples or on-line control samples	One (1) per analytical batch for GC/MS and GC/FID. One (1) per analytical batch or on-line batch for FTIRS	70-130 %R	Nonconformance is %R <70 or >130
GC/MS comparison sample (for FTIRS only)	One (1) per analytical or on-line batch	RPD ≤ 25	Nonconformance if RPD >25
Blind audit samples	Samples and frequency controlled by the Gas PDP Plan	Specified in the Gas PDP Plan	Specified in the Gas PDP Plan

[a]Corrective action per section C8-13 when final reported QC samples do not meet the acceptance criteria.
[b]Applies only to concentrations greater than the PRQLs listed in Table C8-2.

MDL = Method Detection Limit
QAO = Quality Assurance Objective
PDP = Performance Demonstration Program
PRQL = Program Required Quantitation Limit
%R = Percent Recovery
RPD = Relative Percent Difference

TABLE C8-4
TOTAL VOLATILE ORGANIC COMPOUNDS TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy[a] (%R)	MDL (mg/kg)	PRQL (mg/kg)	Completeness (%)
Benzene	71-43-2	≤45	37-151	1	10	90
Bromoform	75-25-2	≤47	45-169	1	10	90
Carbon disulfide	75-15-0	≤50	60-150	1	10	90
Carbon tetrachloride	56-23-5	≤30	70-140		10	90
Chlorobenzene	108-90-7	≤38	37-160		10	90
Chloroform	67-66-3	≤44	51-138	1	10	90
1,4-Dichlorobenzene[b]	106-46-7	≤60	18-190	1	10	90
ortho-Dichlorobenzene[b]	95-50-1	≤60	18-190	1	10	90
1,2-Dichloroethane	107-06-2	≤42	49-155	1	10	90
1,1-Dichloroethylene	75-35-4	≤250	D-234[c]	1	10	90
Ethyl benzene	100-41-4	≤43	37-162	1	10	90
Methylene chloride	75-09-2	≤50	D-221[c]	1	10	90
1,1,2,2-Tetrachloroethane	79-34-5	≤55	46-157		10	90
Tetrachloroethylene	127-18-4	≤29	64-148		10	90
Toluene	108-88-3	≤29	47-150		10	90
1,1,1-Trichloroethane	71-55-6	≤33	52-162		10	90
1,1,2-Trichloroethane	79-00-5	≤38	52-150	1	10	90
Trichloroethylene	79-01-6	≤36	71-157	1	10	90
Trichlorofluoromethane	75-69-4	≤110	17-181	1	10	90
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	≤50	60-150	1	10	90
Vinyl chloride	75-01-4	≤200	D-251[c]	1	4	90
m-xylene	108-38-3	≤50	60-150	1	10	90
o-xylene	95-47-6	≤50	60-150	1	10	90
p-xylene	106-42-3	≤50	60-150	1	10	90
Acetone	67-64-1	≤50	60-150	10[d]	100	90
Butanol	71-36-3	≤50	60-150	10[d]	100	90
Ethyl ether	60-29-7	≤50	60-150	10[d]	100	90
Formaldehyde[e]	50-00-0	≤50	60-150	10[d]	100	90
Hydrazine[f]	302-01-2	≤50	60-150	10[d]	100	90
Isobutanol	78-83-1	≤50	60-150	10[d]	100	90
Methanol	67-56-1	≤50	60-150	10[d]	100	90
Methyl ethyl ketone	78-93-3	≤50	60-150	10[d]	100	90
Pyridine[b]	110-86-1	≤50	60-150	10[d]	100	90

[a]Criteria apply to PRQL concentrations.
[b]Can also be analyzed as a semi-volatile organic compound.
[c]Detected; result must be greater than zero.
[d]Estimate, to be determined.
[e]Required only for homogenous solids and soil/gravel from Los Alamos National Laboratory.
[f]Required only for homogenous solids and soil/gravel from Oak Ridge National Laboratory and Savannah River Site.

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value) (milligrams per kilogram)
PRQL = Program required quantitation limit; calculated from the toxicity characteristic level for benzene assuming a 0.9 oz (25-gram [g]) sample, 0.1 gal (0.5 liter [L]) of extraction fluid, and 100 percent analyte extraction (milligrams per kilogram)

TABLE C8-5
SUMMARY OF LABORATORY QUALITY CONTROL SAMPLES AND FREQUENCIES FOR TOTAL VOLATILE ORGANIC COMPOUND ANALYSIS

QC Sample	Minimum Frequency	Acceptance Criteria	Corrective Action[a]
Method performance samples	Seven (7) samples initially and four (4) semiannually	Meet total VOC analysis QAOs	Repeat until acceptable
Laboratory duplicates[b]	One (1) per analytical batch	Meet total VOC analysis RPDs	Nonconformance if RPDs > values in Table C8-4
Laboratory blanks	One (1) per analytical batch	Analyte concentrations < 3 x MDLs	Nonconformance if analyte concentrations > 3 x MDLs
Matrix spikes	One (1) per analytical batch	Meet total VOC analysis %Rs in QAP	Nonconformance if %Rs are outside the range specified in QAPP
Matrix spike duplicates	One (1) per analytical batch	Meet total VOC analysis RPDs and %Rs	Nonconformance if RPDs and %Rs > values in Table C8-4
Laboratory control samples	One (1) per analytical batch	80 - 120 %R	Nonconformance if %R < 80 or > 120
Surrogate compounds	Each analytical sample	Average %R from minimum of 30 samples for a given matrix ±3 standard deviations	Nonconformance if %R < (average %R - 3 standard deviation) or > (average %R + 3 standard deviation)
Blind audit samples	Samples and frequency controlled by the Solid PDP Plan	Specified in the Solid PDP Plan	Specified in the Solid PDP Plan

[a]Corrective Action per section C8-13 when final reported QC samples do not meet the acceptance criteria.
[b]May be satisfied using matrix spike duplicate; acceptance criteria applies only to concentrations greater than the PRQLs listed in Table C8-4.

MDL = Method detection limit
QAO = Quality assurance objective
PDP = Performance Demonstration Program
%R = Percent recovery
RPD = Relative percent difference

TABLE C8-6
SEMI-VOLATILE ORGANIC COMPOUND TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy [a] (%R)	MDL (mg/kg)	PRQL (mg/kg)	Completeness (%)
Cresols	1319-77-3	≤50	60-150	5	40	90
1,4-Dichlorobenzene[b]	106-46-7	≤86	20-124	5	40	90
ortho-Dichlorobenzene[b]	95-50-1	≤64	32-129	5	40	90
2,4-Dinitrophenol	51-28-5	≤119	D-172[d]	5	40	90
2,4-Dinitrotoluene	121-14-2	≤46	39-139	0.3	2.6	90
Hexachlorobenzene	118-74-1	≤319	D-152[d]	0.3	2.6	90
Hexachloroethane	67-72-1	≤44	40-113	5	40	90
Nitrobenzene	98-95-3	≤72	35-180	5	40	90
Polychlorinated Biphenyls				5	40	90
Aroclor 1016[c]	12674-11-2	≤33	50-114	5	40	90
Aroclor 1221[c]	11104-28-2	≤110	15-178	5	40	90
Aroclor 1232[c]	11141-16-5	≤128	10-215	5	40	90
Aroclor 1242[c]	53469-21-9	≤49	39-150	5	40	90
Aroclor 1248[c]	12672-29-6	≤55	38-158	5	40	90
Aroclor 1254[c]	11097-69-1	≤62	29-131	5	40	90
Aroclor 1260[c]	11096-82-5	≤56	8-127	5	40	90
Pentachlorophenol	87-86-5	≤128	14-176	5	40	90
Pyridine[b]	110-86-1	≤50	60-150	5	40	90

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value) (milligrams per kilogram)
PRQL = Program required quantitation limit; calculated from the toxicity characteristic level for nitrobenzene assuming a 100-gram (g) sample, 0.5 gal (2 liter [L]) of extraction fluid, and 100 percent analyte extraction (milligrams per kilograms)

[a]Criteria apply to PRQL concentrations
[b]Can also be analyzed as a volatile organic compound
[c]Required only for waste matrix code S3220 (organic sludges)
[d]Detected; result must be greater than zero

TABLE C8-7
SUMMARY OF LABORATORY QUALITY CONTROL SAMPLES AND FREQUENCIES FOR TOTAL SEMI-VOLATILE ORGANIC COMPOUNDS ANALYSIS

QC Sample	Minimum Frequency	Acceptance Criteria	Corrective Action[a]
Method performance samples	Seven (7) samples initially and four (4) semiannually	Meet Table C8-7 QAOs	Repeat until acceptable
Laboratory duplicates[b]	One (1) per analytical batch	Meet Table C8-7 RPDs	Nonconformance if RPDs > Table C8-7
Laboratory blanks	One (1) per analytical batch	Analyte concentrations <3 x MDLs	Nonconformance if analyte concentrations > 3 x MDLs
Matrix spikes	One (1) per analytical batch	Meet Table C8-7 %Rs	Nonconformance if %Rs are outside the range specified in Table C8-7
Matrix spike duplicates	One (1) per analytical batch	Meet Table C8-7 RPDs and %Rs	Nonconformance if RPDs and %Rs > Table C8-7 values
Laboratory control samples	One (1) per analytical batch	80 - 120 %Rs	Nonconformance if %R < 80 or > 120
Surrogate compounds	Each analytical sample	Average %R from minimum of 30 samples from a given matrix ±3 standard deviations	Nonconformance if %R < (average %R - 3 standard deviations) or > (average %R + 3 standard deviations)
Blind audit samples	Samples and frequency controlled by the Solid PDP Plan	Specified in the Solid PDP Plan	Specified in the Solid PDP Plan

[a]Corrective action per section C8-13 when final reported QC samples do not meet the acceptance criteria

[b]May be satisfied by using matrix spike duplicate; acceptance criteria applies only to concentrations greater than the PQRLs listed in Table C8-6.

MDL = Method Detection Limit
QAO = Quality Assurance Objective
PDP = Performance Demonstration Program
%R = Percent Recovery
RPD = Relative Percent Difference

TABLE C8-8
TOTAL METALS TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Analyte	CAS Number	Precision (%RSD or RPD)[a]	Accuracy (%R)[b]	PRDL[c] (µg/L)	PRQL (mg/kg)	Completeness (%)
Antimony	744[illegible]6-0	≤30	80-120	100	100	90
Arsenic	744[illegible]8-2	≤30	80-120	100	100	90
Barium	744[illegible]9-3	≤30	80-120	2000	2000	90
Beryllium	7440-41-7	≤30	80-120	100	100	90
Cadmium	7440-43-9	≤30	80-120	20	20	90
Chromium	7440-47-3	≤30	80-120	100	100	90
Lead	7439-9[illegible]	≤30	80-120	100	100	90
Mercury	7439-9[illegible]	≤30	80-120	4.0	4.0	90
Nickel	7440-02-0	≤30	80-120	100	100	90
Selenium	7782-49-2	≤30	80-120	20	20	90
Silver	7440-22-4	≤30	80-120	100	100	90
Thallium	7440-28-0	≤30	80-120	100	100	90
Vanadium	7440-62-2	≤30	80-120	100	100	90
Zinc	7440-66-[illegible]	≤30	80-120	100	100	90

[a]≤ 30 percent control limits apply when sample and duplicate concentrations are ≥ 10 x IDL for ICP-AES and AA techniques, and ≥ 100 x IDL for Inductively Coupled Plasma—Mass Spectrometry (ICP-MS) techniques. If less than these limits, the absolute difference between the two values shall be less than or equal to the PRDL.
[b]Applies to laboratory control samples, laboratory matrix spi[illegible] and PDP blind audit samples. If a solid laboratory control sample material which has established sta[illegible]cal control limits is used, then the established control limits for that material should be used for accuracy requirements.
[c]PRDL set such that it is a factor of 10 below the PRQL for 100 percent solid samples, assuming a 100 x [illegible]ion during digestion.

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
PRDL = Program required detection limit [illegible]e., maximum [illegible]rmissible value for IDL) (milligrams per [illegible]iter)
PRQL = Program required quantitation limit (milligrams pre kilogram)

TABLE C8-9
SUMMARY OF LABORATORY QUALITY CONTROL SAMPLES AND FREQUENCIES FOR TOTAL METALS ANALYSIS

QC Sample	Minimum Frequency	Acceptance Criteria	Corrective Action[a]
Method performance samples	Seven (7) samples initially and four (4) semiannually	Meet Table C8-9 QAOs	Repeat until acceptable
Laboratory blanks	One (1) per analytical batch	≤ 3 x IDL (≤ 5 x IDL for ICP-MS)[b]	Redigest and reanalyze any samples with analyte concentrations which are ≤10 x blank value and ≥ 0.5 x PQRL
Matrix spikes	One (1) per analytical batch	80 - 120 %Rs	Nonconformance if %Rs are <80 or >120
Matrix spike duplicates	One (1) per analytical batch	RPD ≤ 30 80-120 %R	Nonconformance if RPD > 30 or if %R < 80 or > 120
Laboratory control samples	One (1) per analytical batch	80 - 120 %Rs	Redigest and reanalyze for affected analytes
Blind audit samples	Samples and frequency controlled by the Solid PDP Plan	Specified in the Solid PDP Plan	Specified in the Solid PDP Plan

[a]Corrective action per section C8-13 when final reported QC samples do not meet the acceptance criteria

[b] Applies only to concentrations greater than the PQRLs listed in Table C8-8.

IDL = Instrument Detection Limit
PDP = Performance Demonstration Program
PQRL = Program Required Detection Limit
%R = Percent Recovery
RPD = Relative Percent Difference

TABLE C8-10
MINIMUM TRAINING AND QUALIFICATIONS REQUIREMENTS[a]

Personnel	Requirements[a]
Radiography Operators[c]	Site-specific training based on waste matrix codes and waste material parameters; requalification every 2 years
Gas Chromatography Technical Supervisors[b] Gas Chromatography Operators[c]	B.S. or equivalent experience and 6 months previous applicable experience
Gas Chromatography/Mass Spectrometry Operators[c] Mass Spectrometry Operators[c]	B.S. or equivalent experience and 1 year independent spectral interpretation or demonstrated expertise
Gas Chromatography/Mass Spectrometry Technical Supervisors[b] Mass Spectrometry Technical Supervisors[b] Atomic Absorption Spectroscopy Technical Supervisors[b] Atomic Absorption Spectroscopy Operators[c] Atomic Mass Spectrometry Operators[c] Atomic Emission Spectroscopy Operators[c]	B.S. or equivalent experience and 1 year applicable experience
Atomic Mass Spectrometry Technical Supervisors[b]	B.S. and specialized training in Atomic Mass Spectrometry and 2 years applicable experience
Atomic Emission Spectroscopy Technical Supervisors[b]	B.S. and specialized training in Atomic Emission Spectroscopy and 2 years applicable experience.

[a]Based on requirements contained in *USEPA Contract Laboratory Program Statement of Work for Organics Analysis* (Document Number OLM 01.0) and *Statement of Work for Inorganics Analysis* (Document Number ILM 03.0).
[b]Technical Supervisors are those persons responsible for the overall technical operation and development of a specific laboratory technique. QAPjPs shall include the site-specific title for this position.
[c]Operators are those persons responsible for the actual operation of analytical equipment. QAPjPs shall include the site-specific title for this position.

1

FIGURES

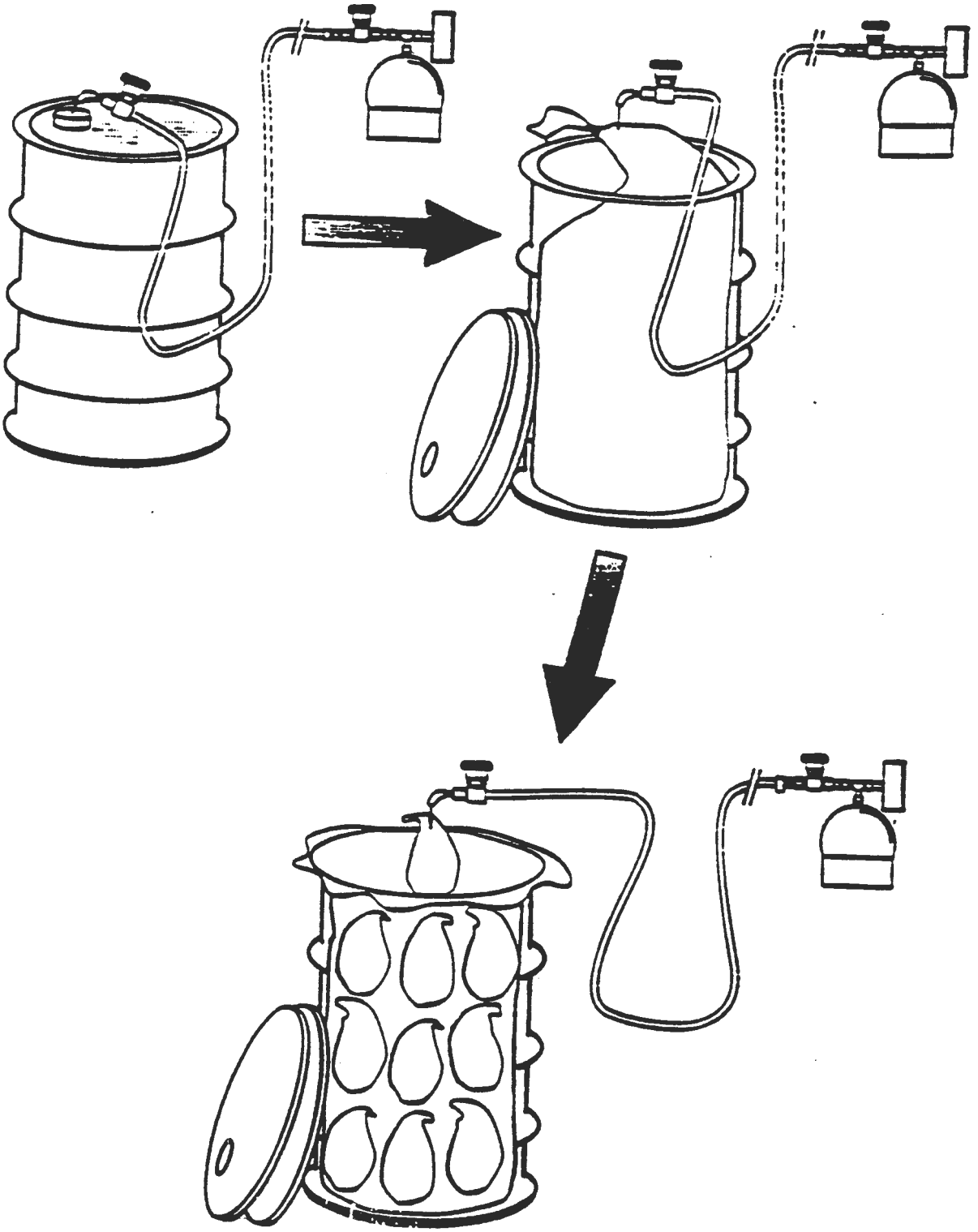


FIGURE C8-1
OVERALL HEADSPACE-GAS SAMPLING SCHEME ILLUSTRATING MANIFOLD SAMPLING

APPENDIX C9
TRU WASTE CHARACTERIZATION USING ACCEPTABLE KNOWLEDGE

APPENDIX C9
TRU WASTE CHARACTERIZATION USING ACCEPTABLE KNOWLEDGE

C9-1 Introduction

The Resource Conservation and Recovery Act (RCRA) regulations codified in 40 CFR Parts 260 through 265, 268, and 270, and the New Mexico Hazardous Waste Management Regulations in Title 20 New Mexico Administrative Code, Chapter 4, Part 1, (20 NMAC 4.1) Subparts I through VI, Subpart VIII, and Subpart IX, authorize the use of acceptable knowledge as a method which can be used in appropriate circumstances by waste generators, or treatment, storage, or disposal facilities to make hazardous waste determinations. Acceptable knowledge is defined in *Waste Analysis: EPA Guidance Manual for Facilities That Generate, Treat, Store and Dispose of Hazardous Waste* (EPA 1994) to include process knowledge, waste analysis data, and facility records of analysis performed before the effective date of RCRA regulations. Acceptable knowledge, as an alternative to sampling and analysis, can be used to meet all or part of the waste characterization requirements under the RCRA (EPA 1994).

Acceptable knowledge is one of a number of techniques used to characterize transuranic (TRU) waste. It is used in conjunction with radiography, headspace gas sampling and analysis, and solidified waste sampling and analysis to meet the requirements of the Waste Analysis Plan (WAP). Acceptable knowledge is used in TRU waste characterization activities in three ways:

- To delineate TRU waste streams
- To determine if TRU debris wastes exhibit a toxicity characteristic (40 CFR §261.24)
- To determine if TRU wastes are listed (40 CFR §261.31)

Acceptable knowledge is confirmed using nondestructive techniques and sampling and analysis.

C9-2 Reasons for Using of Acceptable Knowledge

The Environmental Protection Agency (EPA) (1994) describes four situations in which the use of acceptable knowledge is appropriate. Three of these situations are applicable to TRU waste characterization and are discussed below.

Waste Generating Processes are Well Documented

Waste generating processes from nonspecific sources are included in RCRA regulations at 40 CFR §261.31. The waste generated from these processes are known to contain certain hazardous constituents. Generators of these wastes are not required to perform sampling and analysis of their wastes; knowledge of the process used to generate the waste is required to make an accurate hazardous waste determination.

TRU wastes from nonspecific sources are spent solvent-contaminated wastes (i.e., EPA hazardous waste codes F001 through F005). Acceptable knowledge must be used to determine if these wastes meet the requirements for listing as a spent solvent. To be listed, it must be known if the solvent compound was used for its solvent properties, that is, to solubilize or mobilize other constituents. Examples of solvent use are degreasing, cleaning, use as diluents, extractants, and reaction and synthesis media. In addition, the solvent mixture must have originally contained more than 10 percent by volume of the solvents included under the F001 through F005 listings.

Because listed wastes (i.e., wastes from nonspecific sources under 40 CFR §261.31) are well defined and are based on knowledge of the materials and processes that generate the waste, sampling, and analysis is not required to make a hazardous waste determination. Generators of TRU waste that meets the criteria included in 40 CFR §261.31 (F-listed wastes) must use acceptable knowledge to characterize their TRU waste.

Health and Safety Risks

TRU waste presents serious health and safety risks to waste characterization personnel. Extensive measures are taken by the Department of Energy (DOE) to package this waste so that the potential for human exposure to ionizing radiation is limited. Packaging measures include multiple layers of plastic and shielding to reduce the potential exposure of alpha and gamma radiation, respectively. The breaching of confinement layers or increasing the potential for respirable particulates by size reduction (e.g., shredding or grinding) of TRU debris waste increases the health and safety risks associated with TRU waste management. The design of a data collection program that includes the use of acceptable knowledge allows characterization of TRU waste, while limiting radiation exposure to personnel and the environment.

Physical Nature of the Waste

The TRU waste characterization requirements have been established using the EPA's Data Quality Objectives (DQO) process. The DOE employed this process to establish a defensible, cost-effective program to generate data for regulatory decision making. To make defensible decisions based on sampling and analytical data, a representative sample must be collected. The physical nature of TRU debris wastes (e.g., glass, metal, or combustible waste forms) does not lend itself to the collection and analysis of a representative sample.

To collect a representative sample of TRU debris waste, size reduction and compositing, along with extensive handling of the waste, would be required. During the process of size reduction, target volatile organic compounds (VOC) would be lost so that the final sample would not be representative of the initial waste. Size reduction of alpha-contaminated materials is in direct conflict with DOE's health and safety protocols for the management of TRU waste. Because the greatest risk of exposure to alpha-radiation is by inhalation, TRU waste packaging and handling operations are designed to minimize the potential for airborne particulates. Size reduction of TRU waste would increase the quantities of respirable particulates and increase the potential for release of radionuclides and human exposure. Because of the limited use of data obtained from sampling TRU debris waste, the increase in potential human exposure and the costs associated with facilities to sample and contain TRU waste is not justified.

The EPA (1994) suggests that swiping the surface of waste materials (e.g., metals or glass) may be an alternative to sampling debris wastes. The DQO process requires that the end use of the data be considered in developing sampling and analytical protocols. Swiping the surfaces of TRU waste materials would not provide a representative sample that the DOE could use to make hazardous waste determinations. For example, if VOCs are not detected on the surface of materials, the DOE could not classify the waste as nonhazardous. Many TRU debris wastes contain spent solvents, which are listed according to how the wastes were generated and not whether they contain a listed constituent. In addition, the DOE cannot determine if a waste exhibits a toxicity characteristic based on the concentration of a particular constituent present on surfaces of materials. Therefore, collecting surface swipes is not justified in light of the potential increased exposure to radiation. Collection and preparation of surface swipe samples would not be representative of the waste for the purpose of waste characterization, would be very costly, and would increase the potential exposure of personnel to radiation.

C9-3 Acceptable Knowledge Documentation

It is the responsibility of each DOE TRU waste generator/storage site to develop a logical sequence of acceptable knowledge information that progresses from general facility information (TRU Waste Management Program Information) to more detailed waste-specific information (TRU Waste Stream Information). The consistent presentation of acceptable knowledge documentation among DOE sites in auditable records will allow Waste Isolation Pilot Plant (WIPP) personnel to verify the completeness and adequacy of acceptable knowledge for TRU waste characterization during the audit process.

The following sections include the minimum information that each site must have to characterize TRU waste using acceptable knowledge. Because waste generating processes are site-specific, DOE sites may supplement the minimum required acceptable knowledge records with additional information (Supplemental Acceptable Knowledge Documentation). If the mandatory information is not available for a particular waste, then this waste will not be accepted for disposal at the WIPP facility based on acceptable knowledge alone. Sites may submit additional sampling and analytical data that may provide the required waste characterization information.

TRU Waste Management Program Information

An overview of the TRU waste program provides an understanding of TRU waste management operations at each site. This overview, which will establish the basis for more detailed TRU waste stream information, must reveal an overall perspective of TRU waste management operations and serve as a guide to the waste stream-specific information.

TRU waste management program information must clearly define waste categorization schemes and terminology, provide a breakdown of the types and quantities of TRU waste that are generated and stored at the site, and describe how waste is tracked and managed at the site, including historical and current operations. Information related to TRU waste certification procedures and the types of documentation (e.g., waste profile forms) used to summarize acceptable knowledge must also be provided. The following information must be included as part of the acceptable knowledge record:

- Map of the site with the areas and facilities involved in TRU waste generation, treatment, and storage identified

- Facility mission description as related to TRU waste generation and management (e.g., nuclear weapons research may involve metallurgy, radiochemistry, and nuclear physics operations that result in specific waste streams)

- Description of the operations that generate TRU waste at the site (e.g., plutonium recovery, weapons design, or weapons fabrication)

- Waste identification or categorization schemes used at the facility (e.g., item description codes, content codes)

- Types and quantities of TRU waste generated, including historical generation through future projections

- Correlation of waste streams generated from the same building and process, as appropriate (e.g., sludge, combustibles, metals, and glass)

- Waste certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility

TRU Waste Stream Information

For each TRU waste stream, sites must compile all process information and data that support the acceptable knowledge used to characterize that waste stream. The type and quantity of supporting documentation will vary by waste stream, depending on the process generating the waste and site-specific requirements imposed by DOE or state agencies. At a minimum, the waste process information must include:

- Area(s) and building(s) from which the waste stream was or is generated

- Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievable stored waste generated from June 1977 through December 1977)

- Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes)

- Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area)

- Material inputs or other information that identifies the chemical and radionuclide content of the waste stream and the physical waste form (e.g., glove box materials, chemicals and radionuclides handled during glove box operations, if applicable)

A summary must identify all sources of information. The basis and rationale for defining each waste stream based on the parameters of interest must be clearly summarized and traceable to referenced documents. Assumptions made in defining each waste stream also must be identified and justified.

Supplemental Acceptable Knowledge Documentation

Examples of additional documentation that may be used for acceptable knowledge include, but are not limited to, the following:

- Process design documents (e.g., Title II Design)
- Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of wastes generated and how the wastes are managed at the point of generation
- Preliminary and final safety analysis reports and technical safety requirements
- Waste packaging logs
- Test plans or research project reports that describe reagents and other raw materials used in experiments
- Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements)
- Information from site personnel (e.g., documented interviews)
- Standard industry documents (e.g., vendor information)
- Previous analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, or routine verification sampling
- Material Safety Data Sheets, product labels, or other product package information
- Sampling and analysis data from comparable or surrogate waste streams (e.g., equivalent nonradioactive materials)
- Laboratory notebooks that detail the research processes and raw materials used in an experiment

The specific, relevant information must be identified and justification provided for its use (e.g., identification of a toxicity characteristic). Supplemental documentation is not required but may be used, if available, to further document the rationale for the hazardous waste designations. Similar to required information, if discrepancies exist between supplemental information and the required documentation, then sites must include all potential hazardous waste codes to the subject waste stream. For example, if personnel interviews indicate that lead was part of the

input materials, then D008 must be designated in spite of the fact that no records of the use of lead exist in the required documentation. Sites must prioritize the sources of information used to assign hazardous waste codes in terms of accuracy of the information. Published documents and controlled databases are considered the most reliable information. Second priority will be given to unpublished data, internal procedures, and notes. Correspondence, such as memoranda, letters, telephone logs, and interviews are considered the least defensible. The pages from large documents, such as safety analysis reports, must be flagged with the relevant information noted.

C9-4 Acceptable Knowledge Process

Consistency among DOE sites in using acceptable knowledge information to characterize TRU waste involves a three phase process: 1) compiling the minimum acceptable knowledge documentation in an auditable record, 2) confirming acceptable knowledge information using radiography and headspace-gas sampling and analysis and solidified waste sampling, and 3) auditing acceptable knowledge records. This section describes each phase of the process and specifies the procedures that sites must develop to implement the requirements for using acceptable knowledge.

Site personnel responsible for compiling, assessing, and resolving discrepancies associated with acceptable knowledge must have the following minimum qualifications and training:

- WIPP WAP, Waste Acceptance Criteria, and Quality Assurance Program Plan (QAPP) Requirements
- State and Federal RCRA regulations associated with solid and hazardous waste determinations
- Nonconformance process, including discrepancy resolution and reporting
- Site-specific procedures associated with waste characterization using acceptable knowledge

Assembling an Acceptable Knowledge Record

Figure C9-1 provides an overview of the process for assembling acceptable knowledge documentation into an auditable record. The first step is to assemble all of the mandatory acceptable knowledge information and any supplemental information regarding the materials and processes that generate a specific waste stream. DOE sites must ensure the following criteria are met in establishing acceptable knowledge records:

- Acceptable knowledge information must be compiled in an auditable record, including a road map for all applicable information.
- The overview of the facility and TRU waste management operations in the context of the facility's mission must be correlated to specific waste stream information.

- Correlations between waste streams, with regard to time of generation, waste generating processes, and site-specific facilities must be clearly described.

- A reference list must be provided that identifies documents, databases, Quality Assurance protocols, and other sources of information that support the acceptable knowledge information.

Container inventories for TRU waste currently in retrievable storage are then defined as waste streams by correlating the container identification to the mandatory acceptable knowledge information. For newly generated wastes, the rate and quantity of waste to be generated must be defined and procedures implemented to make hazardous waste determinations using acceptable knowledge prior to packaging the waste.

For all TRU wastes, sites must develop written procedures that describe how RCRA hazardous waste codes are assigned using acceptable knowledge information and how unacceptable wastes (e.g., reactive, ignitable, and corrosive RCRA-regulated hazardous wastes) are identified and segregated from certifiable TRU waste populations. Site-specific procedures must address the following elements:

- Sites must prepare a written procedure outlining the specific methodology used to assemble acceptable knowledge records, including the origin of the documentation, how it will be used, and any limitations associated with the information (e.g., identify the purpose and scope of a study that included limited sampling and analysis data).

- To compile the required acceptable knowledge record, sites must assemble and evaluate available documentation in the following priority: a) relevant information from published documents and controlled databases, b) unpublished data, c) internal procedures and notes, such as log books, and d) correspondence, such as memoranda, letters, telephone logs, and interviews.

- Sites must comply with Section C9-4 to identify hazardous wastes and assign the appropriate hazardous waste codes to each waste stream.

- Sites must describe the waste certification program and procedures that are used to ensure unacceptable wastes are identified and segregated.

- Sites must develop and implement a procedure(s) for the confirmation of acceptable knowledge in accordance with Section C9-4.

- Sites must provide a cross reference to the applicable waste summary category group (i.e., S3000, S4000, and S5000) to verify all of the required confirmation data has been evaluated and the proper hazardous waste codes have been assigned.

The waste certification procedure(s) must describe the administrative controls used by the site to ensure that nonconforming items are documented and managed in accordance with site-

specific certification plans. The following minimum elements must be addressed in site-specific documentation associated with administrative controls:

- Identify the organization(s) responsible for compliance with administrative controls.
- Identify the oversight procedures and frequency of actions to verify compliance with administrative controls.
- Develop on-the-job training specific to administrative control procedures.
- Ensure that personnel may stop work if noncompliance with administrative controls is identified.
- Develop a nonconformance process that complies with the requirements in Section C8-13 of the WAP to document and establish corrective actions.
- As part of the corrective action process, assess the potential time frame of the noncompliance, the potentially affected waste population(s), and the reassessment and recertification of those wastes.

Sites must develop procedures that describe how acceptable knowledge information is evaluated and any discrepancies in documentation resolved. If different sources of information indicate different hazardous wastes are present, then sites must include all sources of information in its records and conservatively assign all potential hazardous waste codes. Discrepancies in acceptable knowledge documentation must be resolved by including all available information in the auditable records and assigning all hazardous waste codes indicated by all of these records to the subject waste. For example, if one record indicates that solvents were not part of a process, while another record indicates that 1,1,1-trichloroethane was used for cleaning parts, then the F001 hazardous waste code must be applied to the waste. No judgements may be made regarding the quality of the required documentation,and the assignment of hazardous waste codes must be tracked to all required documentation.

Sites must compile adequate documentation to demonstrate consistency in assigning hazardous waste codes and to defend and justify the use of acceptable knowledge in making hazardous waste determinations to independent auditors. The following are minimum baseline requirements/standards that site-specific procedures must include to ensure comparable and consistent identification of hazardous waste:

- Compile all of the required information in an auditable record.
- Review the required information to determine if the waste is listed under 40 CFR Part 261, Subpart D. Assign all listed hazardous waste codes.
- Review the required information to determine if the waste may contain hazardous constituents included in the toxicity characteristics specified in 40 CFR Part 261, Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, assign the toxicity characteristic code. Unless data is available from the sampling and analysis of a representative sample of the waste stream

that demonstrates that the concentration of the constituent in the waste is less than the toxicity characteristic regulatory level, no judgement may be made regarding the concentration of the constituent. When analytical data is not available, the toxicity characteristic hazardous waste code for the identified hazardous constituent must be applied to the waste stream.

- In the case of discrepancies in information, no judgement may be made regarding the quality of the information. Sites must ensure that all potential hazardous waste codes are assigned to the waste stream.

Confirmation of Acceptable Knowledge Information

Acceptable knowledge includes information regarding the physical form of the waste, the base materials composing the waste, and the process that generates the waste. Waste characterization (i.e., radiography, headspace-gas sampling and analysis, and solidified waste sampling and analysis) will be used to confirm acceptable knowledge information. Figure C-2 illustrates the process sites will use to confirm acceptable knowledge.

All retrievably stored waste must be characterized using radiography to confirm the waste matrix code and certify compliance with the RCRA Waste Analysis Plan. If a site must repackage its retrievably stored waste, then visual examination of the waste during repackaging is used to confirm acceptable knowledge information rather than radiography.

For newly generated wastes, sites must have written procedures to document the confirmation of acceptable knowledge information with visual examination prior to or during waste packaging. The following minimum requirements must be addressed in site-specific procedures: 1) scope (i.e., waste streams) and purpose, 2) responsible organization(s), 3) administrative process controls, 4) material inputs to process, 5) process controls and range of operation that affect final hazardous waste determinations, 6) rate and quantity of the hazardous waste generated, 7) list of applicable operating procedures relevant to the hazardous waste determination, 8) nonconformance reporting, 9) process knowledge verification sampling (i.e., headspace-gas sampling and/or solidified waste annual sample), and 10) reporting and records management.

Sites must establish procedures for reevaluating acceptable knowledge if radiography or visual examination results in the assignment of a different waste matrix code [e.g., Plastic/Rubber (S5310) versus Paper/Cloth (S5330)]. Site procedures must describe how the waste is reassigned, acceptable knowledge reevaluated, and appropriate hazardous waste codes assigned.

The base materials that compose TRU debris waste (e.g., lead, stainless steel, glass) are well established, and potential toxicity characteristics can be determined without destructive sampling and analysis. The waste matrix code is related to the base materials and waste generating process. In lieu of sampling and analytical data to the contrary, sites must assign the toxicity characteristic hazardous waste codes based on the presence of the constituent, regardless of the quantity or concentration. Radiography or visual examination must be used to confirm the waste matrix code identified using acceptable knowledge. Procedures must describe how discrepancies in the waste matrix code are recorded and changes to hazardous waste codes based on material composition are documented, as necessary. If a waste must be assigned to

a different waste matrix code based on radiography or visual examination, the following minimum steps must be taken to reevaluate acceptable knowledge:

- Review existing information based on the container identification number and document all differences in hazardous waste code assignments
- If differences exist in the hazardous waste codes that were assigned, reassess and document all required acceptable knowledge information (Section C9-3) associated with the new designation
- Reassess and document all sampling and analytical data associated with the waste
- Verify and document that the reassigned waste matrix code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during radiography or visual examination
- Record all changes to acceptable knowledge records
- If discrepancies exist in the acceptable knowledge information for the reassigned waste matrix code, complete a nonconformance report (Appendix C8-13), document the segregation of this container, and define the corrective actions necessary to fully characterize the waste

Finally, radiography and visual examination procedures must include a list of nonconforming items that the operator must verify are not present in each container of waste (i.e., corrosives, ignitables, reactives, incompatible waste). Sites must establish and document administrative controls to ensure that nonconforming items or waste are segregated from certifiable populations.

Headspace-gas sampling and analysis must be conducted on all TRU waste to be sent to the WIPP facility. Headspace-gas data will be used to confirm the presence or absence of VOCs identified using acceptable knowledge.

Sites must use acceptable knowledge to identify spent solvents associated with each TRU waste stream or waste stream lot. Headspace-gas data will be used to confirm acceptable knowledge concerning the presence or absence of F-listed solvents. Headspace-gas data may be used to assist in confirming the characterization of waste contaminated with F-listed solvents by the "mixture rule" (e.g., solvent-contaminated rags mixed with other wastes materials). Sites must provide documentation to support any determination that organic constituents are associated with packaging materials or other uses not consistent with solvent use. If the source of the detected solvents can not be identified, the appropriate spent solvent hazardous waste code will be conservatively applied to the waste stream.

Hazardous wastes associated with S3000 and S4000 waste streams will be verified based on the results of the total analysis of a representative solidified waste sample. If discrepancies between the results obtained from solidified waste sampling and analysis and headspace-gas sampling and analysis exist (i.e., a VOC is detected in the solidified waste but not in the

headspace), the solidified waste data will be used to verify acceptable knowledge and assign hazardous waste codes.

Sites must confirm the assignment of spent solvent hazardous waste codes (40 CFR §261.31) by evaluating the average concentrations of each VOC detected in container headspace gas and/or solidified waste matrix using the upper 90 percent confidence limit (UCL_{90}). The UCL_{90} for the mean concentration must be compared to the program required quantitation limit (PRQL) for the constituent. If the UCL_{90} for the mean concentration exceeds the PRQL, sites must reevaluate their acceptable knowledge information and determine the potential source of the constituent.

If the source of the constituent is identified as a spent solvent used in the process or is determined to be the result of mixing a listed waste with a solid waste during waste packaging, then the site will either: 1) assign the applicable listed hazardous waste code to the entire waste stream, or 2) segregate the drums containing detectable concentrations of the solvent into a separate waste stream and assign applicable hazardous waste codes. Each site must document, justify, and consistently define waste streams and assign hazardous waste codes based on site-specific permit requirements and other state-enforced agreements.

To determine the mean concentration of solvent VOCs, all headspace-gas data and solidified waste data for a waste stream or waste stream lot (i.e., the portion of the waste stream that is characterized as a unit) will be used, including data qualified with a 'J' flag (i.e., less than the PRQL but greater than the method detection limit [MDL]) or qualified with a 'U' flag (i.e., undetected). For data qualified with a 'U' flag, sites must use one-half the MDL in calculating the mean concentration. Because listed wastes are not defined based on concentration, sites may not remove hazardous waste codes assigned using acceptable knowledge if hazardous constituents are not detected in the headspace.

In many cases, TRU headspace gases and solidified waste matrices contain one or two constituents (e.g., carbon tetrachloride and 1,1,1-trichloroethane) at concentrations that are orders of magnitude higher than the other target analytes. In these cases, samples must be diluted to remain within the instrument calibration range. Sample dilution results in elevated MDLs. Only the concentrations of detected constituents will be used to calculate the mean for the purpose of assigning F-listed hazardous waste codes. Because the presence or absence of F-listed solvents can not be confirmed based on the artificially high MDLs that are caused by sample dilution, data flagged as 'U' and showing an elevated MDL will not be used in calculating the mean concentration.

Acceptable knowledge documentation provides primarily qualitative information that cannot be assessed according to specific data quality goals that are used for analytical techniques. Quality assurance objectives for analytical results are described in terms of precision, accuracy, completeness, comparability, and representativeness. Analytical results will be used to confirm the characterization of wastes based on acceptable knowledge (Section C9-4).

The data quality objectives for sampling and analysis techniques are provided in Appendix C8. To ensure that the acceptable knowledge process is consistently applied, sites must comply with the following data quality requirements for acceptable knowledge documentation:

- Precision - Precision is the agreement among a set of replicate measurements without assumption of the knowledge of a true value. The qualitative determinations, such as compiling and assessing acceptable knowledge documentation, do not lend themselves to statistical evaluations of precision.

- Accuracy - Accuracy is the degree of agreement between an observed sample result and the true value. The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different hazardous waste codes based an the reevaluation of acceptable knowledge and sampling and analysis data will be reported as a measure of acceptable knowledge accuracy.

- Completeness - Completeness is an assessment of the number of waste streams or number of samples collected to the number of samples determined to be useable through the data validation process. The acceptable knowledge record must contain 100 percent of the required information (Section C9-3). The useability of the acceptable knowledge information will be assessed for completeness during audits.

- Comparability - Data are considered comparable when one set of data can be compared to another set of data. Comparability is ensured through sites meeting the training requirements and complying with the minimum standards outlined for procedures that are used to implement the acceptable knowledge process. All sites must assign hazardous waste codes in accordance with Section C9-4 and provide this information regarding its waste to other sites who store or generate a similar waste stream.

- Representativeness - Representativeness expresses the degree to which sample data accurately and precisely represent characteristics of a population. Representativeness is a qualitative parameter that will be satisfied by ensuring that the process of obtaining, evaluating, and documenting acceptable knowledge information is performed in accordance with the minimum standards established in Section C9-4. Sites also must assess and document the limitations of the acceptable knowledge information used to assign hazardous waste codes (e.g., purpose and scope of information, date of publication, type and extent to which waste parameters are addressed and limitations of information in identifying hazardous wastes).

Each site must address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of acceptable knowledge confirmation through radiography, headspace-gas analyses, and solidified waste analyses. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by quality assurance organizations and assessments by auditors external to the organization (i.e., DOE/Carlsbad Area Office (CAO).

DOE Site Audits of Acceptable Knowledge

The DOE/CAO will conduct an initial audit of each generator/storage site prior to certifying the site for shipment of TRU waste to the WIPP facility. This initial audit will establish an approved baseline that will be reassessed annually. The QAPP/RCRA portion of these audits will verify compliance with the requirements specified in the WAP and QAPP. The QAPP/RCRA audits will be used to ensure the consistent compilation, application, and interpretation of acceptable knowledge information throughout the DOE complex and to evaluate the completeness and defensibility of site-specific acceptable knowledge documentation related to hazardous waste determinations. Appendix C11 gives a description of the overall audit program and a sample checklist. Figure C9-3 includes the primary steps associated with the audit process of acceptable knowledge.

Audit plans will identify the scope of the audit, requirements to be assessed, participating personnel, activities to be audited, organizations to be notified, applicable documents, and schedule. Audits will be performed in accordance with written procedures and checklists. The audit checklists will include specific items associated with the compilation and evaluation of the required acceptable knowledge information.

Audit checklists must include all of the following elements for review during the audit:

- Documentation of the process used to compile, evaluate, and record acceptable knowledge is available and implemented;
- Personnel qualifications and training are documented;
- All of the required acceptable knowledge documentation specified in Section C9-3 has been compiled in an auditable record;
- A procedure exists for assigning hazardous waste codes to waste streams in accordance with Section C9-4;
- A procedure exists for resolving inconsistencies in acceptable knowledge documentation in accordance with Section C9-4;
- A procedure exists for confirming acceptable knowledge information through: a) radiography or visual examination, b)headspace gas sampling and analysis, and c) solidified waste sampling in accordance with Section C9-4; and
- Results of other audits of the TRU waste characterization programs at the site are available in site records.

Members of the audit team will be knowledgeable regarding the required acceptable knowledge information, RCRA regulations and EPA guidance regarding the use of acceptable knowledge for waste characterization, RCRA hazardous waste determinations, and the WAP and QAPP requirements. Audit team members will be independent of all TRU waste management operations at the site being audited.

Auditors will evaluate all documents associated with the evaluation of the acceptable knowledge documentation for at least one debris waste stream and one solidified waste stream during the audit. For these waste streams, auditors will review all procedures and associated processes developed by the site for documenting the process of compiling acceptable knowledge documentation; correlating information to specific waste inventories; assigning hazardous waste codes; and identifying, resolving, and documenting discrepancies in acceptable knowledge records. The adequacy of acceptable knowledge procedures and processes will be assessed and any deficiencies in procedures documented in the audit report.

Auditors will review the acceptable knowledge documentation for selected waste streams for logic, completeness, and defensibility. The criteria that will be used by auditors to evaluate the logic and defensibility of the acceptable knowledge documentation include completeness and traceability of the information, consistency of application of information, clarity of presentation, degree of compliance with Appendix C9 of the WAP with regard to acceptable knowledge confirmation data, nonconformance procedures, and oversight procedures. Auditors will evaluate compliance with written site procedures for developing the acceptable knowledge record. A completeness review will evaluate the availability of the minimum required TRU waste management and TRU waste stream information (Section C9-3). Records will be reviewed for correlation to specific waste streams and the basis for making hazardous waste determinations. Auditors will verify that sites include all required information and conservatively include all potential hazardous waste codes indicated by the acceptable knowledge records. All deficiencies in the acceptable knowledge documentation will be included in the audit report.

Auditors will verify and document that sites use administrative controls and follow written procedures to make hazardous waste determinations for newly-generated and retrievably stored wastes. Auditors will review procedures used by the sites to confirm acceptable knowledge information using radiography or visual examination and headspace gas sampling and analysis and solidified waste sampling and analysis. Procedures to document changes in acceptable knowledge documentation and hazardous waste code assignments to specific waste streams also will be evaluated for compliance with the WAP.

After the audit is complete, the DOE/CAO will provide the site with preliminary results at a close-out meeting. The DOE/CAO will prepare a final audit report that includes all observations and findings identified during the audit. Sites must respond to all audit findings and identify corrective actions. Audit results will be available at DOE/CAO for review by regulatory agencies, and copies will be provided upon request. If acceptable knowledge procedures do not exist, the minimum required information is not available, or findings of noncompliance are identified associated with hazardous waste determinations, the DOE/CAO will not grant the site waste characterization and certification authority for the subject waste. Waste stream characterization and certification authority may be revoked or suspended if findings during subsequent annual audits indicate a lack of compliance with approved acceptable knowledge procedures. Waste characterization and certification authority will not be reinstated until the site demonstrates all corrective actions have been implemented and the program is reassessed by the DOE/CAO.

The National TRU Program disseminates information regarding TRU waste characterization requirements and program status through the TRU Waste Characterization Interface Working Group. Sites use the CAO electronic bulletin board to disseminate information to other generator sites regarding TRU waste streams, RCRA compliance, and operational and programmatic

issues, methods development, and waste characterization information, including the application of acceptable knowledge. WIPP personnel are provided the required waste characterization information prior to waste acceptance at WIPP and also will conduct audits at least annually. WIPP will maintain an operating record for review during regulatory agency audits. Regulatory agencies may also review information during generator site audits. The NMED will be notified regarding any site's failure to implement corrective actions associated with hazardous waste determinations.

C9-5 Confirmation of Acceptable Knowledge

Prior to notifying a site that a waste stream can be shipped and accepted at the WIPP facility, the DOE/CAO will review the Waste Stream Profile Forms and associated data packages to ensure that radiography, and headspace-gas data confirm hazardous waste determinations made using acceptable knowledge. Sites must provide all of the required data associated with waste stream characterization, including radiography or visual examination results, headspace gas sampling and analysis, and solidified waste sampling and analysis. In addition, sites will designate the assigned hazardous waste codes for the waste stream on the waste profile form. The data packages will be evaluated as illustrated in Figure C9-2 and compared to the hazardous waste codes specified on the waste profile form. The DOE/CAO will review information provided by the sites to ensure that changes to hazardous waste codes are identified and justified based on data and that hazardous waste codes are included in the Part A of the WIPP permit application. As part of the reconciliation of DQOs (Appendix C8, Section C8-11), sites are required to track and report changes to hazardous waste determinations. If data consistently indicates discrepancies with acceptable knowledge information, the DOE/CAO will require sites to increase sampling, reassess the materials and processes that generate the waste, and resubmit waste stream profile information. Until discrepancies are resolved, shipment of the waste stream to the WIPP will be prohibited. Consistent nonconformances by a site in implementing and documenting WAP and QAPP requirements will result in the termination of a site's waste characterization and waste certification authority.

Any drum with unresolved discrepancies associated with hazardous waste determinations will not be shipped to the WIPP facility until the discrepancies are resolved. Sites must reassess the materials and processes that generate the waste, including headspace-gas sampling and analysis, radiography or visual examination, and solidified waste sampling and analysis. All shipments of the subject waste stream will cease until the corrective action(s), as necessary, have been implemented and the discrepancy resolved. The DOE/CAO will notify the New Mexico Environment Department (NMED) when the certification status of a waste stream at a site is revoked. If the site does not comply with the corrective actions associated with the hazardous waste determination, which are specified during the nonconformance process, the DOE/CAO will notify the NMED prior to accepting the subject waste at the WIPP facility.

C9-6 Summary

Acceptable knowledge is used in conjunction with other waste characterization techniques to delineate waste streams, identify listed wastes from nonspecific and specific sources in accordance with 40 CFR §261.31, and determine the toxicity characteristics associated with TRU debris wastes. Acceptable knowledge is a key component in properly making hazardous waste determinations under RCRA. The physical form and the associated increased health and safety

risks associated with obtaining a representative sample of TRU debris wastes, clearly justify the use of acceptable knowledge to make hazardous waste determinations. Acceptable knowledge information is confirmed using nondestructive techniques and sampling and analysis.

The proper assignment of listed hazardous waste codes relies on knowledge of the materials and processes that generated the waste and not on the concentration of constituents. Nuclear weapons production resulted in a variety of wastes contaminated with spent solvents used for cleaning and degreasing (i.e., hazardous waste codes F001-F005). Acceptable knowledge documentation must be used to identify these TRU wastes.

To ensure consistency in the use and interpretation of acceptable knowledge information, sites must compile the minimum required information (Section C9-3) in an auditable record. Sites must develop and implement written procedures that describe the compilation, use, and confirmation of acceptable knowledge. In addition, sites must demonstrate through compliance with written procedures that discrepancies in information will be documented and that hazardous waste codes will be conservatively applied.

The DOE/CAO will audit DOE sites to initially grant TRU waste certification authority to each site. The DOE/CAO will conduct audits at least annually thereafter to verify compliance with approved plans and procedures. Sites will implement corrective action plans that address all audit findings. Waste stream characterization and certification authority will be revoked if trends of consistent noncompliance with the WAP and QAPP are identified by the DOE/CAO at a site.

The DOE/CAO will review waste stream profile forms and associated data packages to ensure that radiography and headspace gas data confirm acceptable knowledge and that the correct hazardous waste codes have been assigned to each waste stream. If complete and adequate information is not provided by the generator regarding the hazardous waste determinations, then the waste will not be authorized for shipment to and disposal at the WIPP facility.

FIGURES

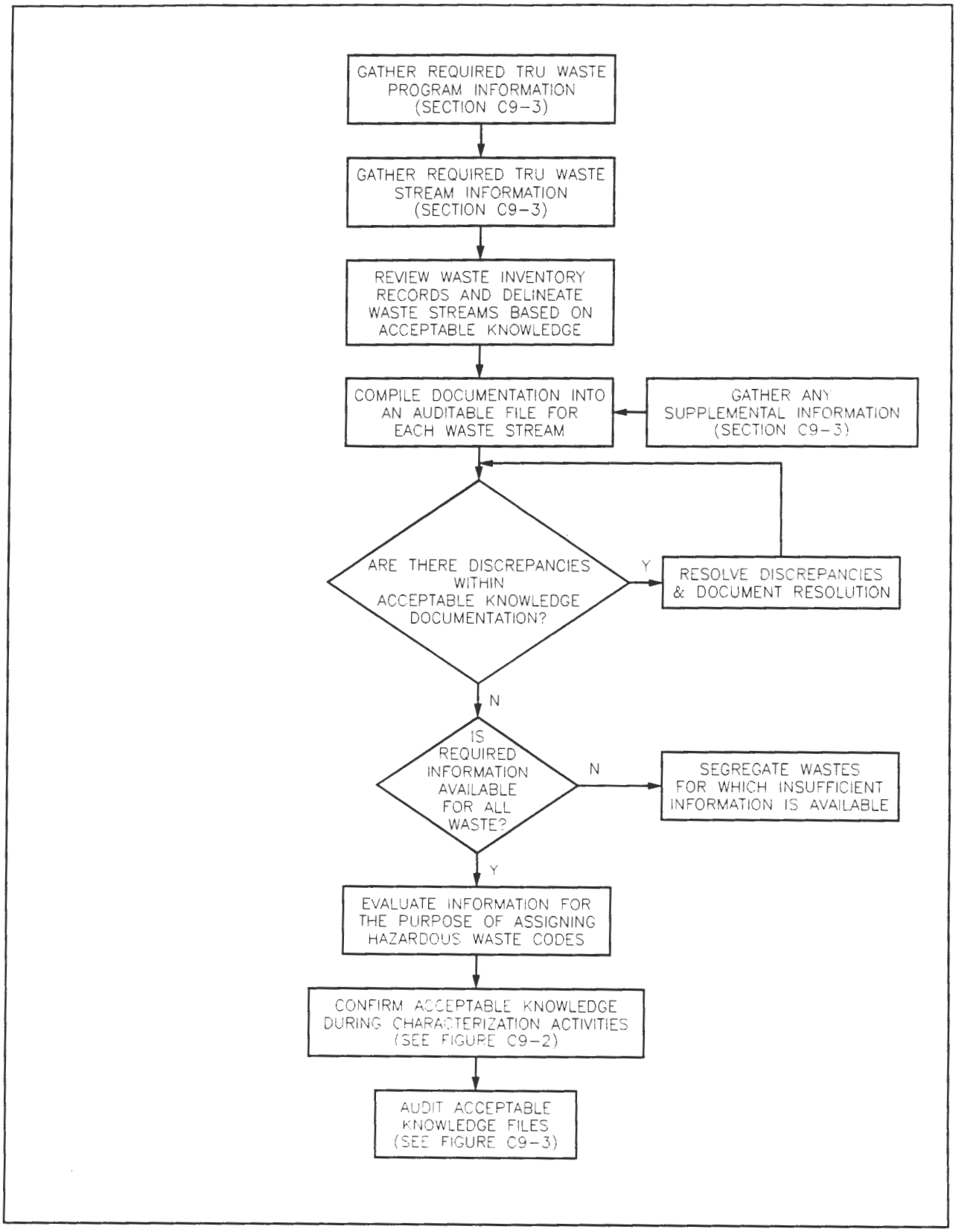


Figure C9-1
Compilation of Acceptable Knowledge Documentation

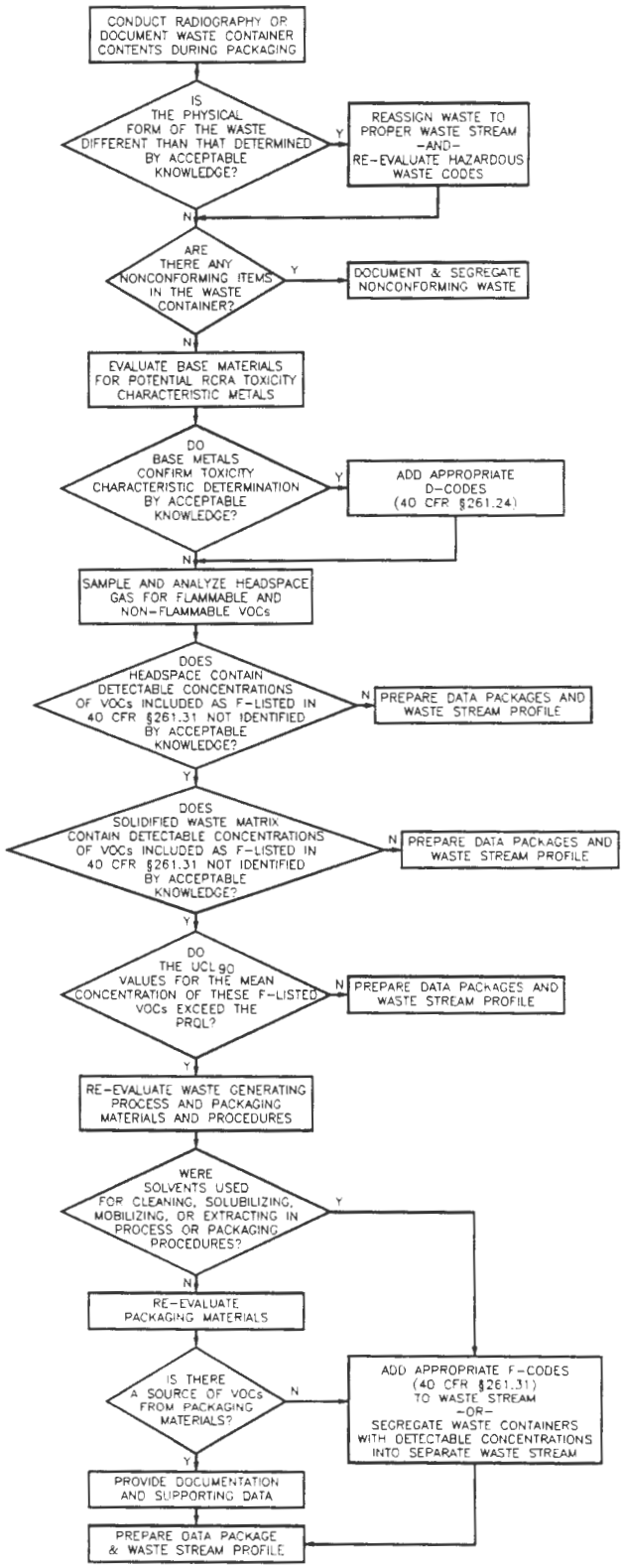


Figure C9-2
Confirmation of Acceptable Knowledge

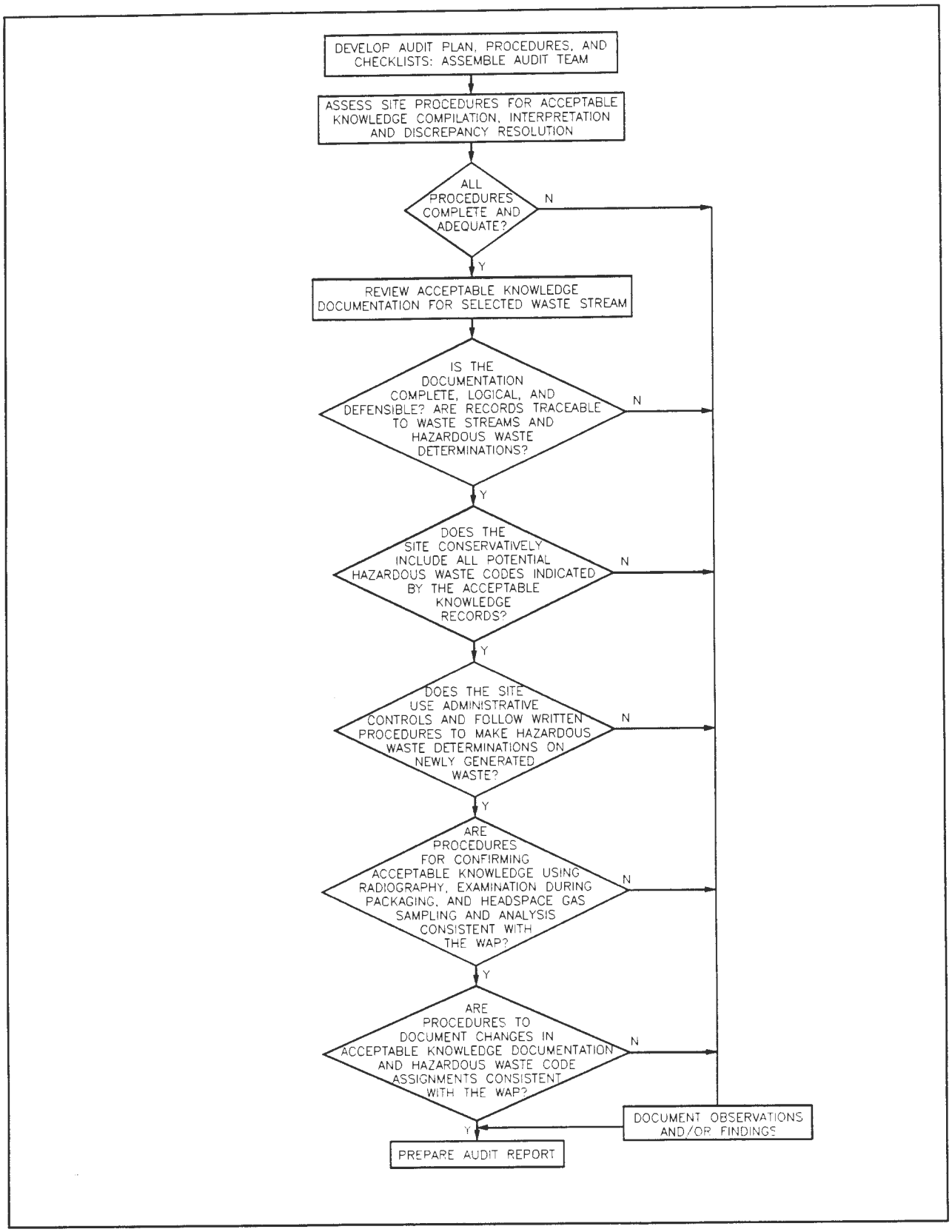


Figure C9-3
Acceptable Knowledge Auditing

APPENDIX C10
QUALITY ASSURANCE PROJECT PLAN REQUIREMENTS

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QUALITY ASSURANCE PROJECT PLAN REQUIREMENTS

C10-1 Quality Assurance Project Plans

Each participating site shall develop and implement a quality assurance project plan (QAPjP) that addresses all the requirements specified in Waste Isolation Pilot Plant waste analysis plan and implemented in the Transuranic Waste Characterization Quality Assurance Program Plan (QAPP)(CAO-94-1010, April 30, 1995). These QAPjPs shall include or reference the appropriate management and technical criteria of the quality assurance program, as well as qualitative or quantitative criteria for determining that waste characterization program activities are being satisfactorily performed. QAPjPs shall identify the organization(s) and position(s) responsible for their implementation. The QAPjPs shall also reference site-specific documentation that details how each of the required elements of the characterization program will be performed.

Prior to the implementation of characterization activities at participating sites, standard operating procedures (SOP) will be developed for all activities affecting waste characterization program quality that require written instructions or procedures. For the purposes of the quality assurance program, the term SOP refers to any site-specific implementing document. Compliance with SOPs will ensure that tasks are performed in a consistent manner that results in achieving the quality required for the quality assurance program. The organization, format, content, and designation of SOPs must be described in the QAPjPs. Site-specific SOPs will be reviewed for consistency with the QAPjP during the Generator/Storage Site Waste Screening and Acceptance Audit Program.

C10-2 Document Review, Approval, and Control

The preparation, issue, and change to documents that specify quality requirements or prescribe activities affecting quality for the transuranic waste characterization program shall be controlled to assure that correct and current documents are used and referenced. The QAPjPs shall include the document control format implemented by the QAPP consisting of a unique document identification number in the upper left-hand corner of each page, and the section number, current revision number, date, and page number placed in the upper right-hand corner of each page. All quality documents for the waste characterization program shall be reviewed prior to approval and issuance by qualified and independent individuals. This review shall consider, as appropriate, the technical adequacy, completeness, and correctness of the documents and the inclusion of appropriate quality requirements. Approval shall be indicated by a signature and date page included in the front of each document. Table C10-1 shows the parties responsible for document review, review/approval, implementation, change approval, and change control. Whenever the quality assurance (QA) documents are revised, review and approval of the revision shall be conducted by the same level of approval authority and in accordance with the requirements of review as the original documents.

At a minimum, revisions to QA documents shall be denoted by including the current revision number on the document title page, the revised signature page, and each page that has been revised. Only revised pages need to be reissued. A vertical bar, indicating the change to the

text, shall be included along the left-hand margin of the page. Revised document submittals shall also identify the changes, the reason for the changes, and the justification for concluding that the revised contents continue to satisfy the requirements of the quality assurance program.

The QAPP shall be controlled by the U.S. Department of Energy Carlsbad Area Office National Transuranic Program (NTP) team leader and distributed by this position to the applicable DOE field offices. A distribution list for the QAPP shall be used to control the issuance of revisions and shall be maintained by the NTP team leader.

The QAPP shall be initially reviewed, approved, and concurred with by those positions indicated in Table C10-1, and thereafter reviewed by the NTP team leader at least annually to ensure it addresses the current needs of the waste characterization quality assurance program. If changes to the QAPP are required, the NTP team leader shall be responsible for scheduling and coordinating the review and approval of the revised document. Changes shall be reported by the NTP team leader to the DOE field office managers for notification to the sites. Each site project manager shall be responsible for the revision of the QAPjP and SOPs in accordance with the approved changes to the QAPP.

Each site must have a document control system to control the review and approval of controlled documents. The NTP team leader, the applicable DOE field office, the site project manager, and the site project QA officer are responsible for the initial review and approval of the QAPjPs. Thereafter, the QAPjPs shall be reviewed at least annually by the site project manager. If changes to the QAPjP are required, the site project manager shall be responsible for scheduling and coordinating the review and approval of the revised document. The QAPjPs shall include a description of the organization(s) or person(s) responsible for distributing revisions to those plans.

The QAPjPs shall include a detailed description of the reporting and approval requirements for changes to approved QA documents and SOPs, including procedures for implementing changes to these documents. All members of the site project staff are responsible for reporting any obsolete or superseded information to the site project manager. All site-specific changes shall be evaluated and approved by the site project manager and the site project QA officer before implementation. The site project manager shall notify the appropriate personnel and the affected documents shall be revised as necessary. The site project manager shall also be responsible for notifying the DOE field office of the changes. No changes that affect performance criteria or data quality; such as sample handling and custody requirements, sampling, and analytical procedures, quality assurance objectives, calibration requirements, or QC sample acceptance criteria; shall be made without prior approval of the DOE field office and the NTP team leader. However, minor changes to QAPjPs and SOPs that do not affect the transuranic waste characterization quality assurance program performance criteria or data quality may be made without prior notification of the DOE field office and the NTP team leader.

TABLE C10-1
REQUIREMENTS FOR REVIEW, APPROVAL, IMPLEMENTATION, AND CONTROL OF THE QAPP AND QAPjPs

	Responsible Party							
	Deputy Assistant Secretary, EM-30	Manager, CAO	Manager, Office of Regulatory Compliance	Manager, CAO Quality Assurance	Team Leader, National TRU Program	DOE Field Office	Site Project Manager	Site Project QA Officer
QAPP								
Review	X							
Review/Concurrence			X	X	X			
Review/Approval		X						
Implementation					X			
Change Approval		X	X	X	X			
Change Control					X			
QAPjPs								
Review/Approval				X	X	X	X	X
Implementation							X	
Change Approval				X		X	X	X
Change Control							X	

APPENDIX C11

WASTE ISOLATION PILOT PLANT GENERATOR/STORAGE SITE WASTE SCREENING AND ACCEPTANCE AUDIT PROGRAM

APPENDIX C11
WASTE ISOLATION PILOT PLANT GENERATOR/STORAGE SITE WASTE SCREENING AND ACCEPTANCE AUDIT PROGRAM

The Waste Isolation Pilot Plant (WIPP) Generator Site Waste Screening and Acceptance Audit Program ensures that: 1) the operators of generator/storage sites that plan to transport transuranic (TRU) mixed waste to the WIPP facility conduct sampling and analysis of wastes in accordance with the current WIPP Waste Analysis Plan (WAP), and 2) the information supplied by each generator/storage site to satisfy the waste screening and acceptability requirements of Section C-5 of the WAP is being managed properly. WIPP (meaning both the U.S. Department of Energy Carlsbad Area Office [DOE/CAO] and Westinghouse Waste Isolation Division [WID] personnel) will conduct these audits at the generator sites in accordance with a standard operating procedure. This procedure will contain steps for selecting audit personnel, reviewing applicable background information, preparing an audit plan, preparing audit checklists, conducting the audit, developing an audit report, and following up audit deficiencies. The checklists used in the audit are tailored for each site to be audited, based on the approved site quality assurance project plan (QAPjP), which is the site-specific implementation of the Transuranic Waste Characterization Quality Assurance Program Plan (QAPP).

Audit procedures incorporate the applicable requirements (e.g., auditor and technical specialist qualifications, lead auditor certification) of 10 Code of Federal Regulations 830.120 (Quality Assurance), and the American Society of Mechanical Engineers NQA-1, part 2.7 of NQA-2, NQA-3, and incorporate requirements of DOE Order 5700.6C (Quality Assurance). It further establishes the responsibilities and methodology for planning, scheduling, performing, reporting, verifying, and closing announced and unannounced audits of TRU mixed waste generator and storage sites. Records of all audit activities are part of the WIPP Operating Record and will be maintained at the WIPP facility until closure.

Approved procedures are used to describe audit activities and requirements. Procedures define the responsibilities of specific positions necessary to manage this audit program. The manager who oversees this program must perform the following:

- Schedule audits, including initial audits prior to approval of waste stream profile forms
- Designate lead auditor(s)
- Appoint auditor and lead auditor trainees
- Maintain auditor training and qualification records
- Assure that all auditors have been given appropriate training, including training on the WAP
- Assign auditors and lead auditors to perform annual certification audits

- Review and approve final audit reports
- Track and close all deficiencies and any observations requiring action
- Assure records are entered into the WIPP Operating Record and are properly maintained until facility closure

The DOE will approve lead auditors, auditors, and technical specialists based upon the expertise required for the functions being examined according to the audit scope, including personnel available from WID. The WID will supply auditors/technical specialists with expertise in the Resource Conservation and Recovery Act (RCRA) requirements and knowledge of the analysis and documentation methods required to verify the hazardous determinations made by the generator sites.

Lead auditors must meet the established experience and education requirements and pass a qualification exam. The lead auditor who is assigned to be the audit team leader must perform the following tasks:

- Concur that assigned auditors and technical specialists have the collective experience and training commensurate with the scope, complexity, or special nature of the activities to be audited
- Develop an audit plan and coordinate the preparation of an overall checklist to cover the scope of the audit, with consideration given to previous audit results from that site
- Assign specific audit areas to individual auditors and technical specialists within their particular specialty and provide guidance on checklist development
- Review individual auditor checklists to assure complete coverage of assigned scope, and approve the checklists
- Conduct the audit at the generator site, with entrance meetings, daily team meetings, daily management update, and exit meetings, ensuring that the site is kept fully apprised of the audit progress and results
- Encourage observers to participate according to the protocol established by the DOE/CAO
- Communicate audit results at the conclusion of the audit, including any deficiencies and observations
- Prepare and sign the audit report
- Maintain complete records of each audit and transfer them to the manager when the audit report is issued

Auditors and technical specialists assigned to the specific audit will report to the audit team leader for supervision and perform the following tasks:

- Attend any required specific training and team orientation and planning meetings as directed by the audit team leader.
- Prepare specific audit checklists to verify that the QAPP Quality Assurance Objectives (QAO) are met for the areas being audited.
- Obtain audit team leader approval of checklist.
- Review acceptable knowledge documentation packages, test report data, and documentation of data verification activities.
- Obtain and evaluate objective evidence by means of observation, document reviews, or the conduct of interviews with operators, analysts, technicians, and others necessary to determine the adequacy and effective implementation of the QAPP programs and this WAP.
- Conduct inspection tours of waste generating stations, analytical laboratories, calibration facilities, administrative, and document control/record facility.
- Complete checklist during the audit indicating the objective evidence observed verifies that the generator site has met the QAOs for the program elements, methods, and the activities being audited. Add other items to the checklist as they are observed or as needed during the audit.
- Prepare narrative statements for all deficiencies, and observations that clearly and concisely identify the conditions involved.
- Prepare any portion of the final audit report assigned by the lead auditor.

Audits will be conducted at least annually for each generator site involved in the waste characterization program. Both announced and unannounced audits address the following:

- Results of previous audits
- Changes in programs or operations
- New programs or activities being implemented
- Changes in key personnel

The conduct of the audit commences with an entrance meeting, conducted by the audit team leader, with site or facility management. At this meeting, the audit objectives and scope, the specific areas to be audited, the processes or functions to be observed, and the site-participation required, including site interfaces, will be identified. The purpose of this meeting is to confirm

the audit scope, discuss the audit sequence, establish channels of communication, and confirm the daily and exit meeting. The audit is performed using the approved audit checklist. Audit checklists are tailored for each site to provide an assessment of the specific activities at that generator site. Consistency of evaluation is ensured before the audit through the generator site QAPjP approval. The QAPjPs for the generator sites must incorporate the same requirements from the QAPP. Objective evidence is examined (to the depth necessary) to determine if the identified activities, procedures, or QAOs are adequate and are being effectively implemented.

Audit conduct is accomplished through site personnel interviews, document and record reviews, observations of operations, and any other activities deemed necessary by the auditors to meet the objectives of the audit. Observations or deficiencies identified during the audit will be investigated or evaluated, as necessary, to determine if they are isolated conditions or represent a general breakdown of the waste characterization quality assurance program. During audit interviews or during the daily management meetings, site personnel will be advised of deficiencies identified within their areas of responsibility to establish a clear understanding of the identified condition.

The site personnel will be given the opportunity to correct any condition that can be corrected during the audit period. Deficiencies and observations will be documented and included as part of the final audit report. Those items that can be resolved during the audit (isolated conditions that do not require a root cause determination or actions to preclude recurrence), will be verified prior to the end of the audit, and so noted in the audit report. Those items that affect the quality of the program, and/or the data generated by that program, will be documented on a Corrective Action Report (CAR) and included as a part of the audit report. The CAR will be entered into the DOE/CAO CAR tracking system and tracked until closure. Also, WID will track RCRA-related items on the systematic tracking and action reporting system.

When a deficiency is identified by the audit team, the condition is documented on a CAR by the audit team leader. The DOE/CAO Quality Assurance (QA) Manager and the National Transuranic Program (NTP) Team Leader review the CAR, determine validity (assures that a requirement has really been violated), classify the significance of the condition, assign a response due date, and issue the CAR to the generator site. The generator site reviews the CAR, evaluates the extent and cause of the deficiency, and provides a response to the WIPP indicating the remedial actions and actions taken to preclude recurrence. The WIPP reviews the response from the generator site and, if acceptable, communicates the acceptance to the generator site. The generator site completes remedial actions and actions to preclude recurrence. After all corrective actions have been completed, the WIPP schedules and performs a verification visit to assure that corrective actions have been completed and are effective. When all actions have been completed and verified as being effective, the CAR is closed by the DOE/CAO QA Manager and the NTP Team Leader. As part of the planning process for subsequent audits and surveillances, past deficiencies are reviewed and the previous deficient activity or process is subject to reassessment.

The generator site management will be required to submit a corrective action plan to eliminate the adverse condition stated on the CAR including a resolution of the acceptability of any data generated prior to the resolution of the corrective action.

The corrective action response will include a discussion of the investigation performed to determine the extent and impact of the deficiency, a description of the remedial actions taken, determination of root cause, and actions to preclude recurrence.

An exit meeting will be conducted by the lead auditor prior to departure of the audit team from the site. This meeting will be with site management personnel, including DOE personnel. All draft audit results will be presented to the generator site management.

The formal audit report will be prepared, approved, and issued to the site within 30 days of the completion of the audit by the WIPP facility. The report will include, as a minimum, sections describing the scope, purpose, summary of deficiencies, and observations in narrative format, as well as an identification of the organization audited, the dates of the audit, and the requested response date. The audited site will respond to any deficiencies and observations within 30 days after receipt of any CARs and indicate the corrective action taken or to be taken. If the corrective action has not been completed, the response must indicate the expected date the action will be completed. Subsequent audits or specific verifications, announced or unannounced, will determine if the corrective action has been satisfactorily implemented. Deficiencies, observations, and CARs will be tracked to completion according to established procedure(s). In addition, all audit items will be trended to determine if similar situations exist system wide. Trend reports will be issued as necessary to provide a "lessons learned" announcement to other generator sites who might benefit from program improvements implemented as a result of resolutions to the specific situations discovered at the performance of these audits.

If a generator/storage site fails to implement a corrective action that directly affects the waste characterization activities at the site, the site will have their certification authority suspended and waste shipments to the WIPP will be suspended until the corrective action is completed.

The audit records will be maintained at WIPP as a part of the Operating Record. These records will be included on the Record Inventory and Disposition Schedule and maintained on-site until closure of the WIPP facility.

TABLE C11-1
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
Quality Assurance Objectives			
A. Radiography			
Does documentation exist to verify the performance of the radiography analyses?			
Does documentation exist to verify the use of specific training drums?			
Does documentation exist to verify independent replicate scans by another qualified operator for each batch of containers scanned?			
Does documentation exist to require the use of test screens for routine equipment checks?			
Are radiography operator qualifications current?			
Has radiography been conducted on all retrievably stored drums planned for disposal at the Waste Isolation Pilot Plant (WIPP) facility?			
Have periodic audio/video tape reviews been performed?			
Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
B. Drum-Headspace Sampling			
Does documentation exist to verify the precision and accuracy of drum-headspace sampling and analysis?			
Have field duplicates been collected for drum-headspace sampling?			
Does the precision of field duplicate analyses meet the quality assurance objective (QAO) specified in the Quality Assurance Program Plan (QAPP)?			
Have field reference standards been collected for drum-headspace sampling?			
Does the accuracy of field reference standards meet the QAO specified in the QAPP?			
Have measures listed in the QAPP been taken to ensure that drum-headspace samples are representative?			
Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
C. Homogeneous Solids and Soils/Gravel Sampling			
Does documentation exist to verify precision and accuracy of homogeneous solids and soils/gravel sampling?			
Have co-located cores been collected for each sampling batch?			
Does the precision of the co-located cores analyses meet the QAO?			
Have measures listed in the QAPP been taken to ensure that homogeneous solids and soils/gravel samples are representative?			
Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
D. Visual Examination Does documentation exist to verify the precision and accuracy of the visual examination analyses? Are visual examination operator qualifications current? Has visual examination been conducted on the required sample of drums planned for disposal at and currently awaiting shipment to the WIPP facility? Does documentation exist to confirm that visual examination has been performed on a statistical portion of waste containers? Does documentation exist to indicate that the QA Officer has determined the Relative Percent Difference of radiography visual examination? Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
E. Gas and Volatile Organic Compound Analyses			
Does documentation exist to verify the precision and accuracy of headspace analyses?			
Have duplicate or replicate measurements been conducted for headspace analyses?			
Does the precision of duplicate or replicate analyses meet the quality assurance objective specified in the QAPP?			
Does the accuracy of U.S. Environmental Protection Agency blind samples and laboratory control standards meet the quality assurance objectives specified in the QAPP?			
Does the instrument meet the method detection limits specified in the QAPP?			
Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
F. Totals Analyses Does documentation exist to verify the precision and accuracy of totals analyses? Have duplicate and replicate measurements been conducted for totals analyses? Does the precision and duplicate or replicate analyses meet the quality assurance objective specified in the QAPP? Does the accuracy of the U.S. Environmental Protection Agency blind samples and laboratory control standards meet the quality assurance objectives specified in the QAPP? Do the instruments meet the method detection limits specified in the QAPP? Have corrective actions, if needed, been implemented per the QAPP?			

_____ Auditor _____ Date _____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
Acceptable Knowledge			
A. Acceptable Knowledge Record Is the acceptance knowledge documentation assembled into an auditable record? Have resolutions between document discrepancies been documented? Are the required documents included in the acceptable knowledge record? Does the acceptable knowledge documentation support the waste stream hazardous waste code assignment? Is the logic behind the assignment of the hazardous waste codes documented and kept as part of the acceptable knowledge record? Are results of other audits of the TRU Waste Characterization Programs at the site available in site records?			
B. Verification Has the acceptable knowledge been verified? Have discrepancies and resolutions been documented?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
C. Acceptable Knowledge Procedures Does a procedure exist for assigning hazardous waste codes to waste streams in accordance with the WAP? Does a procedure exist for resolving inconsistencies in acceptable knowledge documentation in accordance with the WAP? Does a procedure exist for confirming acceptable knowledge information through a) radiography or visual examination, b) headspace gas sampling and analysis, and c) solidified waste sampling in accordance with the WAP?			
D. Acceptable Knowledge Training Are the people using acceptable knowledge to make hazardous waste determinations trained per the requirements in the WAP? Are personnel qualifications and training documented? Does the acceptable knowledge training program contain the elements outlined in the WAP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
Sample Custody			
A. Waste Containers (Drums) Have Chain of Custody (COC) Forms been completed and maintained (per the QAPP) for waste containers, from the time they are removed from inventory until their contents are placed in a shipping container?			
B. Samples Have COC Forms been completed and maintained (per the QAPP) for samples?			
Calibration			
A. Radiography Has radiography equipment been qualified to meet the performance criteria specified in the site Quality Assurance Project Plan (QAPjP) and Standard Operating Procedures?			
B. Headspace Sampling Have the headspace sampling equipment and instrumentation been calibrated per the requirements of the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
C. Visual Examination Has the weighing system used during the visual examination process been calibrated per the requirements of the QAPP?			
D. Determination of Headspace Gases Have the instruments used for the analysis of headspace gases been calibrated per the requirements of the QAPP?			
E. Determination of Headspace Organic Gases Have the instruments used for the analysis of headspace organic gases been calibrated per the requirements of the QAPP?			
F. Determination of Total Metals Have the instruments used for total metals analysis been calibrated per the requirements of the QAPP?			
G. Determination of Total VOCs Have the instruments used for total VOCs analysis been calibrated per the requirements of the QAPP?			

_____ _____ _____ _____
Auditor Date Lead Auditor Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
H. Determination of Total SVOCs Have the instruments used for total SVOCs analysis been calibrated per the requirements of the QAPP?			
Data Reduction, Validation, and Reporting			
A. Data Reduction Is data reduction being conducted at the data generation level per the requirements of the QAPP? Is data reduction being conducted at the project level per the requirements of the QAPP?			
B. Data Validation Is data validation being conducted at the data generation level per the requirements of the QAPP? Is data validation being conducted at the project level per the requirements of the QAPP?			

_____ _____ _____ _____
Auditor Date Lead Auditor Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
C. Data Reporting Is data reporting being conducted at the data generation level per the requirements of the QAPP? Is data reporting being conducted at the project level per the requirements of the QAPP?			
Other Quality Control Checks			
A. Radiography Are radiography QC checks (e.g., replicate radiography examinations by a different qualified operator) conducted per the requirements and at the frequency specified in the QAPP?			
B. Drum Headspace Sampling Are field blanks, sampling equipment blanks, field-reference standards, and field sample duplicates taken per the requirements and at the frequency specified in the QAPP?			
C. Visual Examination Are visual examination quality control (QC) checks conducted per the requirements and at the frequency specified in the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
D. Gas Analysis Are laboratory control standards, sampling manifold blanks, equipment blanks, laboratory blanks, and duplicates analyzed per the requirements and at the frequency specified in the QAPP?			
E. Organic Gas Analysis Are laboratory control standards, sampling manifold blanks, equipment blanks, laboratory blanks, laboratory duplicates, and internal standards analyzed per the requirements and at the frequency specified in the QAPP?			
F. Total Metals Analysis Are laboratory blanks, matrix spikes, matrix spike duplicates and laboratory control samples analyzed per the requirements and the frequency specified in the QAPP?			
G. Total VOCs Analysis Are laboratory duplicates, laboratory blanks, matrix spikes, matrix spike duplicates, laboratory control samples and surrogate compounds analyzed per the requirements and the frequency specified in the QAPP?			

_____ Auditor _____ Date

_____ Lead Auditor _____ Date

TABLE C11-1 (CONTINUED)
EXAMPLE OF WIPP GENERATOR/STORAGE SITE AUDIT CHECKLIST

AUDIT NO. _____ FACILITY/SITE: _____ DATE: _____

Compliance Requirement	Compliance Document	Objective Evidence	Comments
H. Total SVOCs Analysis Are laboratory duplicates, laboratory blanks, matrix spikes, matrix spike duplicates, laboratory control samples, and surrogate compounds analyzed per the requirements and the frequency specified in the QAPP?			
Procedures			
A. Waste Generating Process Procedures Does each waste generating process procedure follow the format specified in the WAP? Does each waste generating process procedure have a section which lists the process controls and range of operation that affect final hazardous waste determinations? Does the procedure specify what actions are to be taken if the parameters do not remain within the specified range and how it is verified that the parameters stay within the given range?			

_____ Auditor _____ Date _____ Lead Auditor _____ Date

APPENDIX C12
COMPARISON OF TRANSURANIC WASTE CHARACTERIZATION PROCEDURES WITH EPA-APPROVED WASTE CHARACTERIZATION METHODS

APPENDIX C12
COMPARISON OF TRANSURANIC (TRU) WASTE CHARACTERIZATION PROCEDURES WITH EPA-APPROVED WASTE CHARACTERIZATION METHODS

The Department of Energy (DOE) sites characterize waste in accordance with this Waste Analysis Plan (WAP) and the Transuranic Waste Characterization Quality Assurance Program Plan (QAPP), which specify waste characterization procedures found in the *Transuranic Waste Characterization Sampling and Analysis Methods Manual* (Methods Manual). The Methods Manual provides a unified source of information on the testing, sampling, and analytical techniques that enable sites to comply with this WAP. The Methods Manual includes all of the testing, sampling, and analytical methodologies accepted by DOE for use in transuranic (TRU) waste characterization requirements.

Many of the analytical procedures found in the Methods Manual are based on methods found in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW-846, Third Edition, Final Update I, and Final Update II. Specifically, analytical procedures for solid phase waste in the Methods Manual are based on SW-846 methods. In these instances, the analyst is referred directly to the SW-846 method for the requirements of the procedure. Only information unique to the Program (e.g., target analytes, quality assurance objectives, quality control requirements) is included in the Methods Manual. The testing and sampling procedures included in the Methods Manual were developed specifically for characterizing TRU waste and equivalent methods are not found in SW-846.

The DOE has examined the consequence of modifying SW-846 methods for use in TRU waste characterization to ensure program specific changes do not compromise the integrity of the original SW-846 methods. This examination considered program-specific modifications (i.e., target analysis, quality assurance objectives, quality control requirements) to ensure: 1) these modifications could be met by the SW-846 method being referenced, and 2) these modifications do not compromise the integrity of the SW-846 method being referenced. DOE examined the following elements of each method:

- Scope and Application
- Summary of Procedure
- Interferences
- Safety
- Apparatus and Materials
- Reagents
- Sample Collection, Preservation, and Handling
- Procedure
- Calculations
- Quality Control
- Procedure Performance
- References

For each element, a comparison was made between the Methods Manual and the SW-846 method. Often, the Methods Manual procedure referred directly, and only, to the SW-846

method. In instances where this is not the case, the Methods Manual procedure requirements were evaluated for applicability and compliance with the requirements of the SW-846 method.

A comparison is made in Table C12-1 which indicates which Methods Manual procedures are based on SW-846 methods, and specifies the appropriate SW-846 method. Tables C12-2 through C12-16 are specific comparisons between SW-846 methods and Method Manual procedures. The "comments" column of Tables C12-2 through C12-16 includes reasoning as to why the differences in the SW-846 method and the Methods Manual procedure are non-impactive.

1

TABLES

TABLE C12-1
CORRELATION BETWEEN SW-846 METHODS AND METHODS MANUAL METHODS

Methods Manual Procedure	SW-846 Method
Procedure 110.1: Sampling Manifold Method to Collect Headspace Gas Samples From a TRU Waste Drum	Program specific procedure, no equivalent SW-846 method
Procedure 110.2: Direct Canister Method to Collect Headspace Gas Samples From a TRU Waste Drum	Program specific procedure, no equivalent SW-846 method
Procedure 110.3: Using a Side-Port Needle to Collect Headspace Gas Samples Through a TRU Waste Drum's Carbon Composite Filter	Program specific procedure, no equivalent SW-846 method
Procedure 110.4: Punching the Drum Lid to Collect Headspace Gas Samples from a TRU Waste Drum	Program specific procedure, no equivalent SW-846 method
Procedure 120.1: Collecting Samples from TRU Waste Drums Containing Homogenous Solids and Soil/Gravel (Sludge)	Program specific procedure, no equivalent SW-846 method
Procedure 210.1: SUMMA® Passivated Stainless Steel Canister Certification and Cleaning	Program specific procedure, no equivalent SW-846 method
Procedure 310.1: Physical Waste Form Characterization Using Radiography	Program specific procedure, no equivalent SW-846 method
Procedure 310.2: Physical Waste Form Characterization Using Visual Examination	Program specific procedure, no equivalent SW-846 method
Procedure 430.1: Modified Method TO-14 for the Gas Chromatography/Mass Spectrometry Determination of Volatile Organic Compounds in Waste Container Headspace	Program specific procedure, no equivalent SW-846 method
Procedure 430.2: Modified Method 8240/8260 for the Determination of Volatile Organic Compounds in Waste Container Headspace	Program specific procedure, no equivalent SW-846 method

TABLE C12-1 (CONTINUED)
CORRELATION BETWEEN SW-846 METHODS AND METHODS MANUAL METHODS

Methods Manual Procedure	SW-846 Method
Procedure 430.3: Method 8240B for the Determination of Total Volatile Organic Compounds in Homogenous Solids and Soil/Gravel	SW-846 Method 8240B: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) -- See Table C12-2
Procedure 430.4: Method 8260A for the Determination of Total Volatile Organic Compounds in Homogenous Solids and Soil/Gravel	SW-846 Method 8260A: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS): Capillary Column Technique -- See Table C12-3
Procedure 430.5: Method 8250A for the Determination of Total Semi-Volatile Organic Compounds in Homogenous Solids and Soil/Gravel	SW-846 Method 8250A: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) -- See Table C12-4
Procedure 430.6: Method 8270B for the Determination of Total Semi-Volatile Organic Compounds in Homogenous Solids and Soil/Gravel	SW-846 Method 8270B: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS): Capillary Column Technique -- See Table C12-5
Procedure 440.1: Gas Chromatography/Flame Ionization Detector Determination of Alcohols and Ketones in Waste Container Headspace	Program specific procedure, no equivalent SW-846 method
Procedure 440.2: Direct Injection Gas Chromatography/Flame Ionization Detector Determination of Nonhalogenated Volatile Organic Compounds in Homogenous Solids and Soil/Gravel	Program specific procedure, no equivalent SW-846 method
Procedure 440.3: Gas Chromatography/Electron Capture Detection Determination of PCBs in Organic Sludge	SW-846 Method 8081: Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography: Capillary Column Technique; SW-846 Method 3550: Ultrasonic Extraction; SW-846 Method 3620: Florisil Column Cleanup. These methods have been optimized for the determination of PCBs only in TRU waste -- See Table C-12-6

TABLE C12-1 (CONTINUED)
CORRELATION BETWEEN SW-846 METHODS AND METHODS MANUAL METHODS

Methods Manual Procedure	SW-846 Method
Procedure 510.1: Mass Spectrometry Determination of Hydrogen and Methane in Waste Container Headspace	Program specific procedure, no equivalent SW-846 method
Procedure 520.1: Gas Chromatography Determination of Hydrogen and Methane in Waste Container Headspace	Program specific procedure, no equivalent SW-846 method
Procedure 610.1: Microwave Assisted Acid Digestion of Homogenous Solids and Soil/Gravel	SW-846 Method 3051: Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils -- See Table C-12-7
Procedure 620.1: Extraction Chromatography Cleanup of Homogenous Solids and Soil/Gravel Samples Undergoing Total Metals Analysis	Program specific procedure, no equivalent SW-846 method
Procedure 630.1: Method 6020 for the Inductively Coupled Plasma-Mass Spectrometry Determination of Total Metals in Homogenous Solids and Soil/Gravel	SW-846 Method 6020: Inductively Coupled Plasma-Mass Spectrometry -- See Table C-12-8
Procedure 640.1: Method 6010A for the Inductively Coupled Plasma-Atomic Emission Spectroscopy Determination of Total Metals in Homogenous Solids and Soil/Gravel	SW-846 Method 6010A: Inductively Coupled Plasma-Atomic Emission Spectroscopy -- See Table C-12-9
Procedure 650.1: Flame Atomic Absorption Spectroscopy Determination of Total Metals in Homogenous Solids and Soil/Gravel	Various SW-846 Direct Aspiration Atomic Absorption Methods, including 7040 (antimony), 7080A (barium), 7090 (beryllium), 7130 (cadmium), 7190 (chromium), 7420 (lead), 7520 (nickel), 7760A (silver), 7840 (thallium), 7910 (vanadium), 7950 (zinc) -- See Table C12-10

TABLE C12-1 (CONTINUED)
CORRELATION BETWEEN SW-846 METHODS AND METHODS MANUAL METHODS

Methods Manual Procedure	SW-846 Method
Procedure 650.2: Graphite Furnace Atomic Absorption Spectroscopy Determination of Total Metals in Homogenous Solids and Soil/Gravel	Various SW-846 Graphite Furnace Atomic Absorption Methods, including 7041 (antimony), 7081 (barium), 7091 (beryllium), 7131A (cadmium), 7191 (chromium), 7421 (lead), 7761 (silver), 7841 (thallium), 7911 (vanadium), 7951 (zinc) -- See Table C12-11
Procedure 650.3: Cold Vapor Atomic Absorption Spectroscopy Determination of Total Mercury in Homogenous Solids and Soil/Gravel	SW-846 Method 7471A Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique) -- See Table C12-12
Procedure 650.4: Hydride Generation Atomic Absorption Spectroscopy Determination of Total Arsenic in Homogenous Solids and Soil/Gravel	SW-846 Method 7061A Arsenic (AA, Gaseous Hydride) -- See Table C12-13
Procedure 650.5: Borohydride Generation Atomic Absorption Spectroscopy Determination of Total Antimony and Arsenic in Homogenous Solids and Soil/Gravel	SW-846 Method 7062 Antimony and Arsenic (AA, Borohydride Reduction) -- See Table C12-14
Procedure 650.6: Hydride Generation Atomic Absorption Spectroscopy Determination of Total Selenium in Homogenous Solids and Soil/Gravel	SW-846 Method 7741A Selenium (AA, Gaseous Hydride) -- See Table C12-15
Procedure 650.7: Borohydride Generation Atomic Absorption Spectroscopy Determination of Total Selenium in Homogenous Solids and Soil/Gravel	SW-846 Method 7742 Selenium (AA, Borohydride Reduction) -- See Table C12-16

TABLE C12-2
COMPARISON OF SW-846 METHOD 8240B AND METHODS MANUAL PROCEDURE 430.3

Methods Manual Procedure 430.3 Section	Corresponding SW-846 Method 8240B Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included in Table 1 • Analyte list is a subset of SW-846 Method 8240B analyte list except for 1,4-dichlorobenzene, ortho-dichlorobenzene, and 1,1,2-trichloro-1,2,2-trifluoroethane • Refers directly and only to SW-846 Method 8240B • Method detection limit of 1 mg/kg • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Analyte list does not include 1,4-dichlorobenzene, ortho-dichlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113) and specifies total xylenes • Estimated quantitation limit for soil/sediment samples is 0.5 mg/kg • Batch not to exceed 20 samples as per SW-846 Chapter One	• SW-846 Method 8240B allows analysis of most volatile organic compounds with boiling points below 200 degrees C and are insoluble or slightly soluble in water. • Dichlorobenzenes can be analyzed as semivolatile organic compound as per Table 1 in the Methods Manual procedure. • Freon 113 is very similar to other freon compound included on the analyte list of SW-846 Method 8240B. • Program QAOs are derived based on SW-846 Method 8240B Table 6 calibration and quality control acceptance criteria (precision and accuracy) and regulatory requirements (MDL and PRQL) • SW-846 Method is capable of quantitating at Procedure 430.3 method detection limit.
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 8240B	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 8240B	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training.	No equivalent section in SW-846 Method 8240B	

TABLE C12-2 (CONTINUED)
COMPARISON OF SW-846 METHOD 8240B AND METHODS MANUAL PROCEDURE 430.3

Methods Manual Procedure 430.3 Section	Corresponding SW-846 Method 8240B Section	Comments
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 8240B	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 8240B	Section 5.0 Reagents	
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to Chapter Four, Section 4.1 of SW-846	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for VOC samples included in SW-846, Chapter Four, Section 4.1.
Section 8.0 Procedure • Allows analyst to determine appropriate preparation techniques based on SW-846 or other nationally recognized standard methods • Refers directly and only to SW-846 Method 8240B for initial calibration • Refers directly and only to SW-846 Method 8240B continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 8240B for analytical steps	Section 7.0 Procedure • Subsection 7.2 addresses initial calibration • Subsection 7.3 addresses continuing calibration • Subsection 7.4.3 addresses the analysis of sediment/soil and waste samples	• Calibration requirements in Procedure 430.3 are the same as found in SW-846 Method 8240B except for the response factor for bromoform listed in Table 2 of Procedure 430.3. This error in Procedure 430.3 will be corrected.

TABLE C12-2 (CONTINUED)
COMPARISON OF SW-846 METHOD 8240B AND METHODS MANUAL PROCEDURE 430.3

Methods Manual Procedure 430.3 Section	Corresponding SW-846 Method 8240B Section	Comments
Section 9.0 Calculations • Refers directly and only to SW-846 Method 8240B • Specifies results reported in mg/kg wet-weight basis	Section 7.5 Data Interpretation • Specifies waste reported in ug/kg wet-weight basis	• Conversion from ug/kg to mg/kg is a simple multiplication step.

TABLE C12-2 (CONTINUED)
COMPARISON OF SW-846 METHOD 8240B AND METHODS MANUAL PROCEDURE 430.3

Methods Manual Procedure 430.3 Section	Corresponding SW-846 Method 8240B Section	Comments
Section 10.0 Quality Control • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs. • Laboratory duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision • Laboratory blanks must be run once per batch, acceptance criteria is <3 x MDLs in Table 1 • Matrix spikes must be run once per batch, acceptance criteria are the Table 1 QAOs for accuracy • Matrix spike duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision and accuracy • Laboratory control samples must be run once per batch, acceptance criteria are 80-120 %R • Surrogate compounds required in each sample, acceptance criteria are average %R from at least 30 samples ±3 standard deviations • Blind audit samples are distributed, analyzed and reported as part of the	Section 8.0 Quality Control • SW-846 Method 8000A requires each laboratory to operate a formal quality control program • Requires demonstration of acceptable accuracy and precision through the analysis of quality control reference sample • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Laboratory duplicates required once per batch in SW-846 Method 8000A, acceptance criteria not addressed • Method blanks required initially and once per batch in SW-846 Method 8000A and Chapter One, various acceptance criteria are recommended • Matrix spikes required once per batch, no acceptance criteria specified for solid samples • Matrix spike duplicates not required in addition to laboratory duplicates • Laboratory control samples required once per batch in SW-846 Chapter One, minimum acceptance criteria 70-140 %R as indicated in Table 6 of SW-846 Method 8240B • Surrogate compounds required in each	• Procedure 430.3 quality control requirements meet or exceed SW-846 Method 8240B quality control requirements • Procedure 430.3 provides a better defined quality control program than SW-846 Method 8240B

TABLE C12-2 (CONTINUED)
COMPARISON OF SW-846 METHOD 8240B AND METHODS MANUAL PROCEDURE 430.3

Methods Manual Procedure 430.3 Section	Corresponding SW-846 Method 8240B Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 8240B	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 8240B	

TABLE C12-3
COMPARISON OF SW-846 METHOD 8260A AND METHODS MANUAL PROCEDURE 430.4

Methods Manual Procedure 430.4 Section	Corresponding SW-846 Method 8260A Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included in Table 1 • Analyte list is a subset of SW-846 Method 8260A analyte list except for 1,1,2-trichloro-1,2,2-trifluoroethane • Refers directly and only to SW-846 Method 8260A • Method detection limit of 1 mg/kg • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Analyte list does not include 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113) • Estimated quantitation limit for soil/sediment samples is 0.5 mg/kg • Batch not to exceed 20 samples as per SW-846 Chapter One	• SW-846 Method 8260A allows analysis of most volatile organic compounds with boiling points below 200 degrees C and are insoluble or slightly soluble in water. • Freon 113 is very similar to other freon compounds included in the analyte list of SW-846 Method 8260A • Program QAOs are derived based on SW-846 Method 8240B Table 6 calibration and quality control acceptance criteria (precision and accuracy) and regulatory requirements (MDL and PRQL) • SW-846 Method 8260A is capable of quantitating at Procedure 430.4 method detection limit.
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 8260A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 8260A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training.	No equivalent section in SW-846 Method 8260A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 8260A	Section 4.0 Apparatus and Materials	

TABLE C12-3 (CONTINUED)
COMPARISON OF SW-846 METHOD 8260A AND METHODS MANUAL PROCEDURE 430.4

Methods Manual Procedure 430.4 Section	Corresponding SW-846 Method 8260A Section	Comments
Section 6.0 Reagents • Refers directly and only to SW-846 Method 8260A	Section 5.0 Reagents	
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to Chapter Four, Section 4.1 of SW-846	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for VOC samples included in SW-846, Chapter Four, Section 4.1.
Section 8.0 Procedure • Allows analyst to determine appropriate preparation techniques based on SW-846 or other nationally recognized standard methods • Refers directly and only to SW-846 Method 8260A for initial calibration • Refers directly and only to SW-846 Method 8260A continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 8260A for analytical steps	Section 7.0 Procedure • Subsection 7.3 addresses initial calibration • Subsection 7.4 addresses continuing calibration • Subsections 7.1, 7.2, and 7.5 address the analysis of sediment/soil and waste samples	• Calibration requirements in Procedure 430.4 are the same as found in SW-846 Method 8260A except for the response factor for bromoform listed in Table 2 of Procedure 430.4. This error in Procedure 430.4 will be corrected.

TABLE C12-3 (CONTINUED)
COMPARISON OF SW-846 METHOD 8260A AND METHODS MANUAL PROCEDURE 430.4

Methods Manual Procedure 430.4 Section	Corresponding SW-846 Method 8260A Section	Comments
Section 9.0 Calculations • Refers directly and only to SW-846 Method 8260A • Specifies results reported in mg/kg wet-weight basis	Section 7.5 Data Interpretation • Specifies waste reported in ug/kg wet-weight basis	• Conversion from ug/kg to mg/kg is a simple multiplication step.

TABLE C12-3 (CONTINUED)
COMPARISON OF SW-846 METHOD 8260A AND METHODS MANUAL PROCEDURE 430.4

Methods Manual Procedure 430.4 Section	Corresponding SW-846 Method 8260A Section	Comments
Section 10.0 Quality Control • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs. • Laboratory duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision • Laboratory blanks must be run once per batch, acceptance criteria is <3 x MDLs in Table 1 • Matrix spikes must be run once per batch, acceptance criteria are the Table 1 QAOs for accuracy • Matrix spike duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision and accuracy • Laboratory control samples must be run once per batch, acceptance criteria is 80-120 %R • Surrogate compounds required in each sample, acceptance criteria are average %R from at least 30 samples ±3 standard deviations • Blind audit samples are distributed, analyzed and reported as part of the	Section 8.0 Quality Control • SW-846 Method 8000A requires each laboratory to operate a formal quality control program • Requires demonstration of acceptable accuracy and precision through the analysis of quality control reference sample • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Laboratory duplicates required once per batch in SW-846 Method 8000A, acceptance criteria not addressed • Method blanks required initially and once per batch in SW-846 Method 8000A and Chapter One, various acceptance criteria are recommended • Matrix spikes required once per batch in SW-846 Method 8000A, no acceptance criteria specified for solid samples • Matrix spike duplicates not required in addition to laboratory duplicates • Laboratory control samples required once per batch in SW-846 Chapter One, minimum acceptance criteria 70-140 %R as indicated in Table 6 of SW-846 Method 8240B	• Procedure 430.4 quality control requirements meet or exceed SW-846 Method 8260A quality control requirements • Procedure 430.4 provides a better defined quality control program than SW-846 Method 8260A

TABLE C12-3 (CONTINUED)
COMPARISON OF SW-846 METHOD 8260A AND METHODS MANUAL PROCEDURE 430.4

Methods Manual Procedure 430.4 Section	Corresponding SW-846 Method 8260A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 8260A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 8260A	

TABLE C12-4
COMPARISON OF SW-846 METHOD 8250A AND METHODS MANUAL PROCEDURE 430.5

Methods Manual Procedure 430.5 Section	Corresponding SW-846 Method 8250A Section	Comments

Section 1.0 Scope and Application
• Program analyte list and quality assurance objectives (QAOs) included as Table 1, which includes:
  • cresols (a mixture of all isomers of cresol [o, m, p])
  • ortho-dichlorobenzene
  • pyridine
• Analyte list is a subset of SW-846 Method 8250A analyte list, except pyridine
• Refers directly and only to SW-846 Method 8250A
• Requires samples to be analyzed in batches not to exceed 20 samples
	Section 1.0 Scope and Application
	• The table in Subsection 1.1 lists the applicable analytes, including:
	  • 2-methylphenol and 4-methylphenol
	  • 1,2-dichlorobenzene
	• Subsection 1.2 includes pyridines as compounds that can be quantitated
	• Batch not to exceed 20 samples as per SW-846 Chapter One
		• The Methods Manual list is a subset of that in SW-846. Cresols are the same as methylphenols and ortho-dichlorobenzene is the same as 1,2-dichlorobenzene. The Methods Manual includes m-cresol (3-methylphenol) in its list (under cresols), which is not included in SW-846. SW-846 does not include pyridine in the analyte list, but allows for it in Subsection 1.2.
		• Program QAOs are derived based on SW-846 Method 8250A Table 6 (accuracy and precision) and regulatory requirements (MDL and PRQL)

Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 8250A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 8250A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 8250A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 8250A	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 8250A	Section 5.0 Reagents	

TABLE C12-4 (CONTINUED)
COMPARISON OF SW-846 METHOD 8250A AND METHODS MANUAL PROCEDURE 430.5

Methods Manual Procedure 430.5 Section	Corresponding SW-846 Method 8250A Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter 4, Section 4.1	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter 4, Section 4.1.
Section 8.0 Procedure • Refers directly and only to SW-846 Method 8250A for sample preparation and cleanup. • Refers directly and only to SW-846 Method 8250A for GC/MS operating conditions • Refers directly and only to SW-846 Method 8250A for initial calibration • Refers directly and only to SW-846 Method 8250A for continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 8250A for analytical steps	Section 7.0 Procedure • Subsections 7.1 and 7.2 refer to other SW-846 methods for sample preparation and cleanup • Subsection 7.3 addresses recommended GC/MS operating conditions • Subsection 7.4 addresses initial calibration • Subsection 7.5 addresses continuing (daily) calibration • Subsection 7.6 addresses the analytical procedure	• Calibration requirements in Procedure 430.5 are the same as found in SW-846 Method 8250A, except for the %RSD for CCCs listed in Table 2 of Procedure 430.5. This error in Procedure 430.5 will be corrected. • Procedure 430.5 includes accuracy criteria for surrogate compounds in its continuing calibration criteria; SW-846 Method 8250A provides this criteria in Subsection 8.9 and Table 8.

TABLE C12-4 (CONTINUED)
COMPARISON OF SW-846 METHOD 8250A AND METHODS MANUAL PROCEDURE 430.5

Methods Manual Procedure 430.5 Section	Corresponding SW-846 Method 8250A Section	Comments
Section 9.0 Calculations • Refers directly and only to SW-846 Method 8250A • Specifies results reported in mg/kg wet-weight basis	Subsection 7.7 Data Interpretation • Specifies waste reported in μg/kg wet-weight basis	• Conversion from μg/kg to mg/kg is a simple multiplication step.

TABLE C12-4 (CONTINUED)
COMPARISON OF SW-846 METHOD 8250A AND METHODS MANUAL PROCEDURE 430.5

Methods Manual Procedure 430.5 Section	Corresponding SW-846 Method 8250A Section	Comments
Section 10.0 Quality Control • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision • Laboratory blanks must be run once per batch, acceptance criteria is <3 x MDLs in Table 1 • Matrix spikes must be run once per batch, acceptance criteria are the Table 1 QAOs for accuracy • Matrix spike duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision and accuracy • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Surrogate compounds must be included in every sample, acceptance criteria are average %R from at least 30 samples ±3 standard deviations • Blind audit samples are distributed,	Section 8.0 Quality Control • Requires each laboratory to operate a formal quality control program • Requires demonstration of acceptable precision and accuracy through the analysis of quality control check standard • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Laboratory duplicates not addressed • Method blanks required initially and once per batch in SW-846 Method 8000A and Chapter One, various acceptance criteria are recommended • Matrix spikes required once per batch, acceptance criteria are the accuracy ranges provided in Method 8250A Table 6 • Matrix spike duplicates required once per batch, acceptance criteria are not addressed • Laboratory control samples required once per batch in SW-846 Chapter One, acceptance criteria are not addressed • Surrogate compounds required in each sample, acceptance criteria are average	• Procedure 430.5 quality control requirements meet or exceed SW-846 Method 8250A quality control requirements • Procedure 430.5 provides a better defined quality control program than SW-846 Method 8250A

TABLE C12-4 (CONTINUED)
COMPARISON OF SW-846 METHOD 8250A AND METHODS MANUAL PROCEDURE 430.5

Methods Manual Procedure 430.5 Section	Corresponding SW-846 Method 8250A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 8250A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 8250A	

TABLE C12-5
COMPARISON OF SW-846 METHOD 8270B AND METHODS MANUAL PROCEDURE 430.6

Methods Manual Procedure 430.6 Section	Corresponding SW-846 Method 8270B Section	Comments

Section 1.0 Scope and Application
• Program analyte list and quality assurance objectives (QAOs) included as Table 1, which includes:
  • cresols (a mixture of all isomers of cresol [o, m, p])
  • ortho-dichlorobenzene
  • pyridine
• Analyte list is a subset of SW-846 Method 8270B analyte list, except pyridine
• Refers directly an only to SW-846 Method 8270B
• Requires samples to be analyzed in batches not to exceed 20 samples
	Section 1.0 Scope and Application
	• The table in Subsection 1.1 lists the applicable analytes, including:
	  • 2-methylphenol, 3-methylphenol, and 4-methylphenol
	  • 1,2-dichlorobenzene
	• Subsection 1.2 includes pyridines as compounds that can be quantitated
	• Batch not to exceed 20 samples as per SW-846 Chapter One
		• The Methods Manual list is a subset of that in SW-846. Cresols is the same as methylphenols and ortho-dichlorobenzene is the same as 1,2-dichlorobenzene. SW-846 does not include pyridine in the analyte list, but allows for it in Subsection 1.2.
		• Program QAOs are derived based on SW-846 Method 8270B Table 6 quality control criteria (accuracy and precision) and regulatory requirements (MDL and PRQL)

Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 8270B	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 8270B	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 8270B	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 8270B	Section 4.0 Apparatus and Materials	

TABLE C12-5 (CONTINUED)
COMPARISON OF SW-846 METHOD 8270B AND METHODS MANUAL PROCEDURE 430.6

Methods Manual Procedure 430.6 Section	Corresponding SW-846 Method 8270B Section	Comments
Section 6.0 Reagents • Refers directly and only to SW-846 Method 8270B	Section 5.0 Reagents	
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter 4, Section 4.1	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter 4, Section 4.1.
Section 8.0 Procedure • Refers directly and only to SW-846 Method 8270B for sample preparation and cleanup • Refers directly and only to SW-846 Method 8270B for initial calibration • Refers directly and only to SW-846 Method 8270B for continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 8270B for analytical steps	Section 7.0 Procedure • Subsections 7.1 and 7.2 refer to other SW-846 methods for sample preparation and cleanup • Subsection 7.3 addresses initial calibration • Subsection 7.4 addresses continuing (daily) calibration • Subsection 7.5 addresses the analytical procedure	• Calibration requirements in Procedure 430.6 are the same as found in SW-846 Method 8270B, except for the %RSD for CCCs listed in Table 2 of Procedure 430.6. This error in Procedure 430.6 will be corrected. • Procedure 430.6 includes accuracy criteria for surrogate compounds in its continuing calibration criteria; SW-846 Method 8270B provides this criteria in Subsection 8.9 and Table 8.

TABLE C12-5 (CONTINUED)
COMPARISON OF SW-846 METHOD 8270B AND METHODS MANUAL PROCEDURE 430.6

Methods Manual Procedure 430.6 Section	Corresponding SW-846 Method 8270B Section	Comments
Section 9.0 Calculations • Refers directly and only to SW-846 Method 8270B • Specifies results reported in mg/kg wet-weight basis	Subsection 7.6 Data Interpretation • Specifies waste reported in μg/kg wet-weight basis	• Conversion from μg/kg to mg/kg is a simple multiplication step.

TABLE C12-5 (CONTINUED)
COMPARISON OF SW-846 METHOD 8270B AND METHODS MANUAL PROCEDURE 430.6

Methods Manual Procedure 430.6 Section	Corresponding SW-846 Method 8270B Section	Comments
Section 10.0 Quality Control • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision • Laboratory blanks must be run once per batch, acceptance criteria is <3 x MDLs in Table 1 • Matrix spikes must be run once per batch, acceptance criteria are the Table 1 QAOs for accuracy • Matrix spike duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision and accuracy • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Surrogate compounds must be included in every sample, acceptance criteria are average %R from at least 30 samples ±3 standard deviations • Blind audit samples are distributed, analyzed and reported as part of the	Section 8.0 Quality Control • Requires each laboratory to operate a formal quality control program • Requires demonstration of acceptable precision and accuracy through the analysis of quality control reference standard • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Laboratory duplicates required once per batch, acceptance criteria are not addressed • Method blanks required initially and once per batch in SW-846 Method 8000A and Chapter One, various acceptance criteria are recommended • Matrix spikes required once per batch, acceptance criteria are not addressed for solid samples • Matrix spike duplicates not required in addition to laboratory duplicates • Laboratory control samples required once per batch in SW-846 Chapter One, acceptance criteria are not addressed • Surrogate compounds required in each sample, acceptance criteria are average %R from at least 30 samples ± 3	• Procedure 430.6 quality control requirements meet or exceed SW-846 Method 8270B quality control requirements • Procedure 430.6 provides a better defined quality control program than SW-846 Method 8270B

TABLE C12-5 (CONTINUED)
COMPARISON OF SW-846 METHOD 8270B AND METHODS MANUAL PROCEDURE 430.6

Methods Manual Procedure 430.6 Section	Corresponding SW-846 Method 8270B Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 8270B	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 8270B	

TABLE C12-6
COMPARISON OF COMBINED SW-846 METHODS (8081, 3550, 3620) AND METHODS MANUAL PROCEDURE 440.3

Methods Manual Procedure 440.3 Section	Corresponding SW-846 Method(s) Section	Comments
Section 1.0 Scope and Application • Program analyte list (limited to 7 PCB Aroclors) and quality assurance objectives (QAOs) included as Table 1 • Analyte list is a subset of SW-846 Method 8081 analyte list • Refers directly SW-846 Methods 8000A, 8081, 3550, and 3620 • Requires samples to be analyzed in batches not to exceed 20 samples • Method detection limit set at 5 mg/kg	Section 1.0 Scope and Application • SW-846 Method 8081 analyte list includes numerous pesticides and PCB aroclors • Batch not to exceed 20 samples as per SW-846 Chapter One • Minimum reported method detection limits are 0.057-0.070 mg/kg for PCB aroclors	• Procedure 440.3 has been optimized for the determination of PCBs in TRU waste sludge • Procedure 440.3 analyte list is a subset of SW-846 Method 8081 analyte list • Program QAOs are derived based on SW-846 Method 8081 Tables 15 and 16 and procedure development work (precision and accuracy) and regulatory requirements (MDL and PRQL) • SW-846 Method 8081 capable of quantitating at Procedure 440.3 method detection limit
Section 2.0 Summary of Procedure • Sample preparation, hexane extraction with vortex mixing, Florisil cleanup, and quantitation by GC/ECD is summarized	Section 2.0 Summary of Method • SW-846 Method 8081 requires appropriate extraction method, hexane-acetone extraction according to SW-846 Method 3550 allowed • SW-846 Method 8081 allows for a variety of cleanup steps as discussed in Section 3.0 • SW-846 Method 8081 allows quantitation with GC/ECD	
Section 3.0 Interferences • General discussion of possible interferences • Requires Florisil cleanup for spindle oil • Refers directly to SW-846 Method 8081	Section 3.0 Interferences • SW-846 allows for a variety of cleanup methods, including Florisil cleanup according to SW-846 Method 3620	

TABLE C12-6 (CONTINUED)
COMPARISON OF COMBINED SW-846 METHODS (8081, 3550, 3620) AND METHODS MANUAL PROCEDURE 440.3

Methods Manual Procedure 440.3 Section	Corresponding SW-846 Method(s) Section	Comments
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Methods	
Section 5.0 Apparatus and Materials • Refers directly to SW-846 Method 8081 • Specifies extraction and cleanup equipment and materials	Section 4.0 Apparatus and Materials • Equivalent equipment specified in SW-846 Methods 3550 and 3620	
Section 6.0 Reagents • Refers directly to SW-846 Method 8081 • Requires certified standard solutions • Stock standards limited to 6 months shelf life, or as required for purity • Calibration standards must include all aroclors, individually and as mixes • 5 standards required that encompass 5-500 ppm range • Calibration standards limited to 2 months shelf life • Surrogate standards are DCBP as primary, TCMX as secondary • Surrogate final concentration in cleaned extract to be 0.05 ppm • Refers to SW-846 Method 8081, Section 8.3 for corrective action for out-of-control surrogate recovery	Section 5.0 Reagents • Stock standards limited to 1 year shelf life, or as required for purity • Calibration standards to encompass expected concentration range of samples • Calibration standards limited to 6 months shelf life, or as required for purity • Surrogate standards are DCBP as primary, TCMX as secondary	• Procedure 440.3 should refer to SW-846 Method 8081, Section 8.2.2 for corrective action of out-of-control surrogate standards. This error will be corrected.

TABLE C12-6 (CONTINUED)
COMPARISON OF COMBINED SW-846 METHODS (8081, 3550, 3620) AND METHODS MANUAL PROCEDURE 440.3

Methods Manual Procedure 440.3 Section	Corresponding SW-846 Method(s) Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Requires sample extracts to be stored under refrigeration and in dark and must be analyzed within 40 days of extraction • Refers to SW-846 Chapter Four	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846 Method 8081 and Chapter Four.
Section 8.0 Procedure • Requires hexane extraction and vortex mixing of 2.0 gram sample; surrogate must be added to each sample and blank • Requires Florisil cleanup of all samples • Refers directly to SW-846 Method 8000A for initial and continuing calibration • Requires a 3 point calibration curve • All calibration requirements are summarized in Table 2 • Refers directly to SW-846 Methods 8000A and 8081 for analytical steps	Section 7.0 Procedure • SW-846 Method 8000A, Subsection 7.4.2 addresses calibration requirements and requires a 5 point calibration curve • SW-846 Method 8000A, Subsection 7.6, and Method 8081, Subsection 7.5 addresses analysis	• Because Procedure 440.3 was developed to analyze PCBs in samples of radioactive organic sludge, extraction and cleanup steps are modified from SW-846 Methods 3550 and 3620. Extensive procedure performance documentation is included in Section 11.0 to support and justify modified techniques. • Procedure 440.3 requires a 3 point calibration curve. Extensive procedure performance documentation is included in Section 11.0 to support and justify this calibration.
Section 9.0 Calculations • Requires quantitation by summing 3-5 peaks associated with appropriate Aroclor(s)	Section 7.6.4 Quantitation of PCBs • Allows quantitation by summing areas of 3-5 peaks associated with appropriate Aroclor	

TABLE C12-6 (CONTINUED)
COMPARISON OF COMBINED SW-846 METHODS (8081, 3550, 3620) AND METHODS MANUAL PROCEDURE 440.3

Methods Manual Procedure 440.3 Section	Corresponding SW-846 Method(s) Section	Comments
Section 10.0 Quality Control • Refers directly to SW-846 Method 8081, Subsections 8.4 (GC/MS confirmation) and 8.5 (Florisil cleanup) • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision • Laboratory blanks must be run once per batch, acceptance criteria is <3 x MDLs in Table 1 • Matrix spikes must be run once per batch, acceptance criteria are the Table 1 QAOs for accuracy • Matrix spike duplicates must be run once per batch, acceptance criteria are the Table 1 QAOs for precision and accuracy • Laboratory control samples must be run once per batch, acceptance criteria are 80-120 %R • Surrogate compounds must be included in every sample, acceptance criteria are	Section 8.0 Quality Control • SW-846 Method 8000A requires each laboratory to operate a formal quality control program • Recommends demonstration of acceptable accuracy through the analysis of quality control reference standard once per batch, acceptance criteria is 80-120 %R • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Laboratory duplicates required once per batch in SW-846 Method 8000A and Chapter One, acceptance criteria are not addressed • Method blanks required initially and once per batch in SW-846 Method 8000A and Chapter One, various acceptance criteria are recommended • Matrix spikes required once per batch in SW-846 Method 8000A, no acceptance criteria specified for solid samples • Matrix spike duplicates not required in addition to laboratory duplicates • Laboratory control samples not addressed	• The laboratory control sample required by Procedure 440.3 fulfills the quality control reference standard recommended by SW-846 Method 8081 • Procedure 440.3 quality control requirements meet or exceed SW-846 Method 8081 quality control requirements • Procedure 440.3 provides a better defined quality control program than SW-846 Method 8081

TABLE C12-6 (CONTINUED)
COMPARISON OF COMBINED SW-846 METHODS (8081, 3550, 3620) AND METHODS MANUAL PROCEDURE 440.3

Methods Manual Procedure 440.3 Section	Corresponding SW-846 Method(s) Section	Comments
Section 11.0 Procedure Performance • Extensive documentation of performance of the optimized extraction, cleanup, and analytical procedure developed by Argonne National Laboratory	Section 9.0 Method Performance • References extensive method performance work performed by Oak Ridge National Laboratory	• Because Procedure 440.3 was developed to analyze PCBs in samples of radioactive organic sludge, extraction and cleanup steps are modified from SW-846 Methods 3550 and 3620. Extensive procedure performance documentation is included in Section 11.0 of Procedure 440.3 to support and justify modified techniques.
Section 12.0 References • *Determination of PCBs in Rocky Flats Type IV Waste Sludge by Gas Chromatography/Electron Capture Detection* (ANL 1993) • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 8081	

TABLE C12-7
COMPARISON OF SW-846 METHOD 3051 AND METHODS MANUAL PROCEDURE 610.1

Methods Manual Procedure 610.1 Section	Corresponding SW-846 Method 3051 Section	Comments
Section 1.0 Scope and Application • Program analyte indicated (subset of analytes allowed by SW-846 Method 3051) • List of analytical methods applicable to this preparation procedure • Refers directly to SW-846 Method 3051 • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Section 1.1, analyte list • Section 1.2, addresses analytical methods applicable to this preparation procedure • Batch not to exceed 20 samples as per SW-846 Chapter One	• Procedure 610.1 analyte list is a subset of the analyte list in SW-846 Method 3051 • The acceptable analytical procedures to be used for the digestates generated by this procedure are identical
Section 2.0 Summary of Procedure • Refers directly and only to SW-846, Method 3051	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846, Method 3051	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 3051	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846, Method 3051	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846, Method 3051	Section 5.0 Reagents	

TABLE C12-7 (CONTINUED)
COMPARISON OF SW-846 METHOD 3051 AND METHODS MANUAL PROCEDURE 610.1

Methods Manual Procedure 610.1 Section	Corresponding SW-846 Method 3051 Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody procedures in Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation, and Handling • Samples collected following sampling plan in SW-846 Chapter Nine • Sample containers must be prewashed in SW-846 Chapter Three • Samples must be refrigerated and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements in SW-846 Method 3051, Chapter Nine, and Chapter Three
Section 8.0 Procedure • Refers to SW-846 Method 3051 for procedural requirements. • Final acid concentration of digestate should be 4 M nitric acid if using Procedure 620.1 for transuranic element cleanup.	Section 7.0 Procedure	• Procedure 620.1 does not have an equivalent method in SW-846 because it is used to preferentially extract transuranic elements from the sample matrix to reduce interferences.
Section 9.0 Calculations • Does not apply to procedure	Section 7.0 Procedure • Section 7.0 of SW-846, Method 3051 includes all required calculations	• Procedure 610.1 will be revised to refer to Section 7.0 of SW-846, Method 3051

TABLE C12-7 (CONTINUED)
COMPARISON OF SW-846 METHOD 3051 AND METHODS MANUAL PROCEDURE 610.1

Methods Manual Procedure 610.1 Section	Corresponding SW-846 Method 3051 Section	Comments
Section 10.0 Quality Control • Laboratory blank must be included in analytical batch. • Matrix spike must be included in analytical batch. • Matrix spike duplicate must be included in analytical batch. • Laboratory control sample must be included in analytical batch. • Refers analyst to quality control section of the analytical procedure used for any additional requirements.	Section 8.0 Quality Control • Method blank required once per batch in SW-846 Chapter One, various acceptance criteria are recommended • Matrix spike required once per batch in SW-846 Method 3051, Section 8.3, acceptance criteria are not addressed • Matrix spike duplicate or duplicate recommended once per batch in SW-846 Method 3051, Section 8.2, acceptance criteria are not addressed • Laboratory control samples required once per batch in SW-846 Chapter One	• No acceptance criteria given in Procedure 610.1 for quality control samples. Acceptance criteria are found in the analytical methods • Procedure 610.1 quality control requirements (as included in analytical procedures) meet or exceed SW-846 quality control requirements • Methods Manual procedure provide a better defined quality control program than SW-846
Section 11.0 Procedure Performance • Refers directly and only to SW-846, Method 3051	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 3051	

TABLE C12-8
COMPARISON OF SW-846 METHOD 6020 AND METHODS MANUAL PROCEDURE 630.1

Methods Manual Procedure 630.1 Section	Corresponding SW-846 Method 6020 Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included in Table 1 • Analyte list is a subset of SW-846 Method 6020 analyte list • Refers directly to SW-846 Method 6020 • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Analyte list included as Table 1 • Batch not to exceed 20 samples per SW-846 Chapter One	• Program QAOs are derived from SW-846 Method 6020 (precision and accuracy) and regulatory requirements (MDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 6020	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 6020	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 6020	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 6020	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 6020	Section 5.0 Reagents	

TABLE C12-8 (CONTINUED)
COMPARISON OF SW-846 METHOD 6020 AND METHODS MANUAL PROCEDURE 630.1

Methods Manual Procedure 630.1 Section	Corresponding SW-846 Method 6020 Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Samples collected following SW-846 Chapter Nine • Reference to SW-846 Chapter Three, Section 3.1.3 for sample handling and preservation	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846 Chapter Three and Chapter Nine
Section 8.0 Procedure • Sample preparation procedures must follow Procedure 610.1 of Methods Manual • Sample cleanup Procedure 620.1 of the Methods Manual may be used • Refers directly and only to SW-846 Method 6020 for initial and continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 6020 for analytical steps	Section 7.0 Procedure • Subsection 7.1 references sample preparation methods, SW-846 Method 3051, microwave assisted digestion, allowed • Subsections 7.2 through 7.10 address calibration and analytical requirements	• Procedure 610.1 is based on SW-846 Method 3051 (see Table C-12-7)

TABLE C12-8 (CONTINUED)
COMPARISON OF SW-846 METHOD 6020 AND METHODS MANUAL PROCEDURE 630.1

Methods Manual Procedure 630.1 Section	Corresponding SW-846 Method 6020 Section	Comments
Section 9.0 Calculations • Refers to Section 7.12 of SW-846 Method 6020 for required calculations. • Sample dilution must be taken into account • Results reported in mg/kg (wet weight basis) • Percent solid content must be determined on a separate sample aliquot to convert analytical results into mg/kg dry weight	Section 7.0 Procedure • Section 7.11 of SW-846 Method 6020 addresses required calculations	• Procedure 630.1 will be revised to reference Section 7.11 of SW-846 Method 6020

TABLE C12-8 (CONTINUED)
COMPARISON OF SW-846 METHOD 6020 AND METHODS MANUAL PROCEDURE 630.1

Methods Manual Procedure 630.1 Section	Corresponding SW-846 Method 6020 Section	Comments
Section 10.0 Quality Control • Refers to Section 8.1 through 8.5 of SW-846 Method 6020 and states that all quality control requirements are mandatory • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • IDL must be at or below PRDL • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criteria are ≤5 x IDL • Matrix spikes must be run once per batch, acceptance criteria are 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are 80-120 %R and ≤30 RPD • Laboratory control samples must be run once per batch, acceptance criteria are 80-120 %R • Blind audit samples are distributed, analyzed, and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Subsection 8.1 requires the laboratory to establish a formal quality control program • SW-846 Chapter One includes equations for calculating precision, accuracy and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • SW-846 Chapter One and SW-846 6020, Subsection 5.5 lists three blanks that must be included (calibration blank, preparation blank, and rinse blank), acceptance criteria is programmatic • Matrix spike required once per batch, acceptance criteria are not addressed • One duplicate (may be matrix spike duplicate) is required per batch, recommended acceptance criteria are ≤20 RPD for concentrations >100 x IDL • Laboratory control sample recommended once per batch, acceptance criteria are not addressed • Blind audit samples not addressed, however participation in an external performance evaluation program is addressed in SW-846 Chapter One	• Procedure 630.1 quality control requirements meet or exceed SW-846 Method 6020 quality control requirements • Procedure 630.1 provides a better defined quality control program than SW-846 Method 6020

TABLE C12-8 (CONTINUED)
COMPARISON OF SW-846 METHOD 6020 AND METHODS MANUAL PROCEDURE 630.1

Methods Manual Procedure 630.1 Section	Corresponding SW-846 Method 6020 Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 6020	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 6020	

TABLE C12-9
COMPARISON OF SW-846 METHOD 6010A AND METHODS MANUAL PROCEDURE 640.1

Methods Manual Procedure 640.1 Section	Corresponding SW-846 Method 6010A Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included as Table 1 • Analyte list is a subset of SW-846 Method 6010A analyte list • Refers directly SW-846 Method 6010A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Analyte list included as Table 1 • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived from SW-846 Method 6010A (precision and accuracy) and regulatory requirements (MDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 6010A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 6010A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 6010A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 6010A	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 6010A	Section 5.0 Reagents	

TABLE C12-9 (CONTINUED)
COMPARISON OF SW-846 METHOD 6010A AND METHODS MANUAL PROCEDURE 640.1

Methods Manual Procedure 640.1 Section	Corresponding SW-846 Method 6010A Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Three, Section 3.1 through 3.3 for sample handling and preservation	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapters Three and Nine
Section 8.0 Procedure • Procedure 610.1 of the Methods Manual must be followed • Procedure 620.1 of the Methods Manual may be used if cleanup is required • Refers directly and only to SW-846 Method 6010A for initial calibration • Refers directly and only to SW-846 Method 6010A for continuing calibration • All calibration requirements are summarized in Table 2 • Refers directly and only to SW-846 Method 6010A for analytical steps	Section 7.0 Procedure • Subsection 7.1 references sample preparation methods, SW-846 Method 3051, microwave assisted digestion, allowed • Subsections 7.2 through 7.5 address initial calibration, continuing calibration, and analytical steps	• Procedure 610.1 is based on SW-846 Method 3051 (see Table C-12-7)
Section 9.0 Calculations • Specifies results reported in mg/kg wet-weight basis • Use the calibration curve to determine analyte concentration	• Section 7.0 addresses quantitation	

TABLE C12-9 (CONTINUED)
COMPARISON OF SW-846 METHOD 6010A AND METHODS MANUAL PROCEDURE 640.1

Methods Manual Procedure 640.1 Section	Corresponding SW-846 Method 6010A Section	Comments
Section 10.0 Quality Control • Refers to Section 8.1 through 8.5 of SW-846, Method 6010A and requires that all quality control requirements are mandatory • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, method detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criteria are ≤3 x IDL • Matrix spikes required once per batch, acceptance criteria are 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are 80-120 %R and ≤30 RPD • Laboratory control samples must be run once per batch, acceptance criteria are 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • SW-846 Chapter One requires each laboratory to operate a formal quality control program • SW-846 Chapter One requires demonstration of acceptable precision and accuracy through the analysis of quality control reference standard • SW-846 Chapter One includes equations used for calculating accuracy, precision, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • SW-846 Chapter One and SW-846 Method 6010A requires the method blank be run once per batch, acceptance criteria are ±3 standard deviations of mean blank value • Matrix spikes required once per batch, acceptance criteria 80-120 %R • Matrix spike duplicates required once per batch, acceptance criteria is ≤20 RPD and 80-120 %R • Laboratory control samples required once per batch in SW-846 Chapter One, acceptance criteria are not addressed • Blind audit samples not addressed, however participation in an external	• Procedure 640.1 quality control requirements meet or exceed SW-846 Method 6010A quality control requirements • Procedure 640.1 provides a better defined quality control program than SW-846 Method 6010A

TABLE C12-9 (CONTINUED)
COMPARISON OF SW-846 METHOD 6010A AND METHODS MANUAL PROCEDURE 640.1

Methods Manual Procedure 640.1 Section	Corresponding SW-846 Method 6010A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 6010A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 6010A	

TABLE C12-10
COMPARISON OF SW-846 METHODS 7000A, 7040, 7080A, 7090, 7130, 7190, 7420, 7520, 7760A, 7840, 7910, AND 7950 AND METHODS MANUAL PROCEDURE 650.1

Methods Manual Procedure 650.1 Section	Corresponding SW-846 Methods Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included as Table 2 • Analyte list is correlated directly to appropriate SW-846 Method • Refers directly to SW-846 Methods listed in Table 1 and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Table 1 analyte list, no specified QAOs in SW-846 Method 7000A • Batch not to exceed 20 samples as per SW-846 Chapter One	• Each individual method refers to SW-846 Method 7000A for general requirements. However each method for a specific analyte may have additional requirements unique to the analyte • Program QAOs are derived based on SW-846 Methods (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Methods listed in Table 1	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Methods listed in Table 1	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Methods	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Methods listed in Table 1	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Methods listed in Table 1	Section 5.0 Reagents	

TABLE C12-10 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7040, 7080A, 7090, 7130, 7190, 7420, 7520, 7760A, 7840, 7910, AND 7950 AND METHODS MANUAL PROCEDURE 650.1

Methods Manual Procedure 650.1 Section	Corresponding SW-846 Methods Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846 Chapter Nine
Section 8.0 Procedure • Procedure 610.1 of the Methods Manual must be followed • Procedure 620.1 of the Methods Manual may be used if cleanup is required • Refers directly to SW-846 Methods listed in Table 1 for analytical steps except for silver which refers to Section 7.4 through 7.6 of SW-846 Method 7760A • Use of proven matrix modifiers other than those specified in SW-846 is acceptable • All calibration requirements are summarized in Table 3	Section 7.0 Procedure • Subsection 7.1 addresses sample preparation, Section 5.0 addresses standard preparation Section 7.0 addresses analysis • Calibration criteria are provided in SW-846 Method 7000A Subsections • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.1 are the same as found in SW-846 Method 7000A. • Procedure 650.1 requires 3 standards in the initial calibration; Method 7000A requires a minimum of three standards.

TABLE C12-10 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7040, 7080A, 7090, 7130, 7190, 7420, 7520, 7760A, 7840, 7910, AND 7950 AND METHODS MANUAL PROCEDURE 650.1

Methods Manual Procedure 650.1 Section	Corresponding SW-846 Methods Section	Comments
Section 9.0 Calculations • Allows for reading analyte concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	Subsection 7.4 • Subsection 7.4 in SW-846 Method 7000A addresses concentration determination calculations including sample dilution calculations	

TABLE C12-10 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7040, 7080A, 7090, 7130, 7190, 7420, 7520, 7760A, 7840, 7910, AND 7950 AND METHODS MANUAL PROCEDURE 650.1

Methods Manual Procedure 650.1 Section	Corresponding SW-846 Methods Section	Comments
Section 10.0 Quality Control • Refers to Subsection 8.6 and 8.7 of SW-846 Method 7000A and requires that all quality control requirements are mandatory • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 2 QAOs • Laboratory blanks must be run once per batch, acceptance criteria is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criteria is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criteria is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000A Section 8.0 • SW-846 Method 7000A Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommeded • Matrix spikes required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Laboratory control samples (reference standard) required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Blind audit samples not addressed, however participation in an external performance evaluation program is addressed in SW-846 Chapter One	• Procedure 650.1 quality control requirements meet or exceed SW-846 Methods quality control requirements • Procedure 650.1 provides a better defined quality control program than the SW-846 Methods

TABLE C12-10 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7040, 7080A, 7090, 7130, 7190, 7420, 7520, 7760A, 7840, 7910, AND 7950 AND METHODS MANUAL PROCEDURE 650.1

Methods Manual Procedure 650.1 Section	Corresponding SW-846 Methods Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Methods listed in Table 1	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Methods 7000A, 7040, 7080, 7090,7130, 7190, 7420, 7520, 7760A, 7840, 7910, and 7950	

TABLE C12-11
COMPARISON OF SW-846 METHODS 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, AND 7951 AND METHODS MANUAL PROCEDURE 650.2

Methods Manual Procedure 650.2 Section	Corresponding SW-846 Methods Section	Comments
Section 1.0 Scope and Application • Program analyte list and quality assurance objectives (QAOs) included as Table 2 (Nickel is listed as an analyte for analysis by GFAA) • Refers directly to SW-846 Methods listed in Table 1 and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • SW-846 Method 7000A, Table 1 analyte list • SW-846 does not list a GFAA method for nickel • Batch not to exceed 20 samples as per SW-846 Chapter One	• Each individual method refers to SW-846 Method 7000A for general requirements. However each method for a specific analyte may have additional requirements unique to the analyte • Program QAOs are derived based on SW-846 Methods (precision and accuracy) and regulatory requirements (PRDL and PRQL) • Table 1 in Procedure 650.2 will be revised to reflect the correct SW-846 method numbers • Analyte list for Procedure 650.2 will be revised to exclude nickel
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Methods listed in Table 1	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Methods listed in Table 1	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Methods	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Methods listed in Table 1	Section 4.0 Apparatus and Materials	

TABLE C12-11 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, AND 7951 AND METHODS MANUAL PROCEDURES 650.2

Methods Manual Procedure 650.2 Section	Corresponding SW-846 Methods Section	Comments
Section 6.0 Reagents • Refers directly and only to SW-846 Methods listed in Table 1	Section 5.0 Reagents	
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846 Chapter Nine

TABLE C12-11 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, AND 7951 AND METHODS MANUAL PROCEDURES 650.2

Methods Manual Procedure 650.2 Section	Corresponding SW-846 Methods Section	Comments
Section 8.0 Procedure • Procedure 610.1 of the Methods Manual must be followed • Procedure 620.1 of the Methods Manual may be used if cleanup is required • Refers directly to SW-846 Methods listed in Table 1 for analytical steps except for arsenic, selenium, and silver which refer to Sections of SW-846 Methods 7061, 7741, and 7761 respectively • Use of proven matrix modifiers other than those specified in SW-846 is acceptable • All calibration requirements are summarized in Table 3	Section 7.0 Procedure • Subsection 7.1 addresses sample preparation, Section 5.0 addresses standard preparation Section 7.0 addresses analysis • Calibration criteria are provided in SW-846 Method 7000A Subsections • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.1 are the same as found in SW-846 Method 7000A. • Procedure 650.1 requires 3 standards in the initial calibration; Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading analyte concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	Subsection 7.4 • Subsection 7.4 in SW-846 Method 7000A addresses concentration determination calculations including sample dilution calculations	

TABLE C12-11 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, AND 7951 AND METHODS MANUAL PROCEDURES 650.2

Methods Manual Procedure 650.2 Section	Corresponding SW-846 Methods Section	Comments
Section 10.0 Quality Control • Refers to Subsection 8.6 and 8.7 of SW-846 Method 7000A and requires that all quality control requirements are mandatory • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 2 QAOs • Laboratory blanks must be run once per batch, acceptance criteria are ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criteria are 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criteria are 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000A Section 8.0 • SW-846 Method 7000A Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field sample analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Laboratory control samples (reference standard) required once per batch in SW-846 Method 7000A Section 8.0, acceptance criteria not addressed • Blind audit samples not addressed, however participation in an external performance evaluation program is	• Procedure 650.2 quality control requirements meet or exceed SW-846 Methods quality control requirements • Procedure 650.2 provides a better defined quality control program than SW-846 Methods

TABLE C12-11 (CONTINUED)
COMPARISON OF SW-846 METHODS 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, AND 7951 AND METHODS MANUAL PROCEDURES 650.2

Methods Manual Procedure 650.2 Section	Corresponding SW-846 Methods Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Methods listed in Table 1	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Methods 7000A, 7041, 7081, 7091, 7131A, 7191, 7421, 7761, 7841, 7911, and 7951	

TABLE C12-12
COMPARISON OF SW-846 METHOD 7471A AND METHODS MANUAL PROCEDURE 650.3

Methods Manual Procedure 650.3 Section	Corresponding SW-846 Method 7471A Section	Comments
Section 1.0 Scope and Application • Program quality assurance objectives (QAOs) for mercury included as Table 1 • Refers directly to SW-846 Methods 7471A and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Method 7471A is approved for measuring total mercury • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived based on SW-846 Method 7471A (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 7471A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 7471A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 7471A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 7471A	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 7471A	Section 5.0 Reagents	

TABLE C12-12 (CONTINUED)
COMPARISON OF SW-846 METHOD 7471A AND METHODS MANUAL PROCEDURE 650.3

Methods Manual Procedure 650.3 Section	Corresponding SW-846 Method 7471A Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846 Chapter Nine
Section 8.0 Procedure • Refers directly and only to SW-846 Method 7471A for sample and standard preparation and analysis • Allows for use of fluorescence detection instead of absorption as long as all other method requirements are met • All calibration requirements are summarized in Table 2	Section 7.0 Procedure • Subsections 7.1 through 7.4 address sample and standard preparation and analysis • Calibration criteria are provided in SW-846 Method 7000A Subsections 8.2 and 8.3 • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.3 are the same as found in SW-846 Method 7000A. • Procedure 650.3 requires 5 standards in the initial calibration; SW-846 Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading mercury concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	Subsections 7.5 and 7.6 • Subsections 7.5 and 7.6 address constructing a calibration curve and determining mercury concentration • Subsection 7.6 requires sample dilution taken into account and concentrations appropriately qualified (e.g., dry weight)	

TABLE C12-12 (CONTINUED)
COMPARISON OF SW-846 METHOD 7471A AND METHODS MANUAL PROCEDURE 650.3

Methods Manual Procedure 650.3 Section	Corresponding SW-846 Method 7471A Section	Comments
Section 10.0 Quality Control • Refers to Subsections 8.5, 8.6, and 8.7 of SW-846 Method 7000A • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criterion is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criterion is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000 Section 8.0 • SW-846 Method 7000 Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Laboratory control samples required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Blind audit samples not addressed, however participation on an external performance demonstration program is addressed in SW-846 Chapter One	• Procedure 650.3 quality control requirement meet or exceed SW-846 7471A quality control requirements • Procedure 650.3 provides a better defined quality control program than SW-846 Method 7471A

TABLE C12-12 (CONTINUED)
COMPARISON OF SW-846 METHOD 7471A AND METHODS MANUAL PROCEDURE 650.3

Methods Manual Procedure 650.3 Section	Corresponding SW-846 Method 7471A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 7471A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 7471A	

TABLE C12-13
COMPARISON OF SW-846 METHOD 7061A AND METHODS MANUAL PROCEDURE 650.4

Methods Manual Procedure 650.4 Section	Corresponding SW-846 Method 7061A Section	Comments
Section 1.0 Scope and Application • Program quality assurance objectives (QAOs) for arsenic included as Table 1 • Refers directly to SW-846 Methods 7061A and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Method 7061A is approved for determining the concentration of arsenic in waste • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived based on SW-846 Method 7061A (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 7061A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 7061A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 7061A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 7061A	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 7061A	Section 5.0 Reagents	

TABLE C12-13 (CONTINUED)
COMPARISON OF SW-846 METHOD 7061A AND METHODS MANUAL PROCEDURE 650.4

Methods Manual Procedure 650.4 Section	Corresponding SW-846 Method 7061A Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter Nine
Section 8.0 Procedure • Refers directly and only to SW-846 Method 7061A for procedural requirements • All calibration requirements are summarized in Table 2	Section 7.0 Procedure • Provides sample and standard preparation and analytical procedures • Calibration criteria are provided in SW-846 Method 7000A Subsections 8.2 and 8.3 • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.4 are the same as found in SW-846 Method 7000A. • Procedure 650.4 requires 5 standards in the initial calibration; SW-846 Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading arsenic concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	• SW-846 Method 7061A does not address determining the concentration of arsenic • SW-846 Method 7000A Subsection 7.4 addresses determining metal concentration	

TABLE C12-13 (CONTINUED)
COMPARISON OF SW-846 METHOD 7061A AND METHODS MANUAL PROCEDURE 650.4

Methods Manual Procedure 650.4 Section	Corresponding SW-846 Method 7061A Section	Comments
Section 10.0 Quality Control • Refers to SW-846 Method 7000A Subsections 8.5, 8.6, and 8.7 • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criterion is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criterion is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000 Section 8.0 • SW-846 Method 7000 Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however, SW-846 Chapter One requires demonstration of method performance prior to field analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Laboratory control samples required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Blind audit samples not addressed, however participation on an external performance demonstration program is addressed in SW-846 Chapter One	• Procedure 650.4 quality control requirements meet or exceed SW-846 Method 7061A quality control requirements • Procedure 650.4 provides a better defined quality control program than SW-846 Method 7061A

TABLE C12-13 (CONTINUED)
COMPARISON OF SW-846 METHOD 7061A AND METHODS MANUAL PROCEDURE 650.4

Methods Manual Procedure 650.4 Section	Corresponding SW-846 Method 7061A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 7061A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 7061A	

TABLE C12-14
COMPARISON OF SW-846 METHOD 7062 AND METHODS MANUAL PROCEDURE 650.5

Methods Manual Procedure 650.5 Section	Corresponding SW-846 Method 7062 Section	Comments
Section 1.0 Scope and Application • Program quality assurance objectives (QAOs) for antimony and arsenic included as Table 1 • Refers directly to SW-846 Methods 7062 and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Method 7062 is approved for determining 1 μg/L to 400 μg/L of antimony and arsenic in waste • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived based on SW-846 Method 7062 (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly to SW-846 Method 7062 • Requires sample preparation according to Methods Manual Procedure 610.1 before evaporating the samples to near dryness at the end of the digestion	Section 2.0 Summary of Method • Refers to SW-846 Method 3050 for digestion	• SW-846 Method 3051 is provided as an alternative to Method 3050 • Procedure 610.1 is based on SW-846 Method 3051 (see Table C-12-7)
Section 3.0 Interferences • Refers directly and only to SW-846 Method 7062	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 7062	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 7062	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 7062	Section 5.0 Reagents	

TABLE C12-14 (CONTINUED)
COMPARISON OF SW-846 METHOD 7062 AND METHODS MANUAL PROCEDURE 650-5

Methods Manual Procedure 650.5 Section	Corresponding SW-846 Method 7062 Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter Nine
Section 8.0 Procedure • Refers directly and only to SW-846 Method 7062 for procedural requirements • All calibration requirements are summarized in Table 2	Section 7.0 Procedure • Provides analytical procedures • Calibration criteria are provided in SW-846 Method 7000A Subsections 8.2 and 8.3 • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.5 are the same as found in SW-846 Method 7000A. • Procedure 650.5 requires 5 standards in the initial calibration; Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading antimony and arsenic concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	Subsections 7.6 and 7.7 • Addresses reading the concentration of antimony and arsenic from the calibration curve and using method of standard additions	

TABLE C12-14 (CONTINUED)
COMPARISON OF SW-846 METHOD 7062 AND METHODS MANUAL PROCEDURE 650-5

Methods Manual Procedure 650.5 Section	Corresponding SW-846 Method 7062 Section	Comments
Section 10.0 Quality Control • Refers to SW-846 Method 7000A Subsections 8.5, 8.6, and 8.7 • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criterion is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criterion is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000 Section 8.0 • SW-846 Method 7000 Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Laboratory control samples required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Blind audit samples not addressed, however participation on an external performance demonstration program is addressed in SW-846 Chapter One	• Procedure 650.5 quality control requirements meet or exceed SW-846 Method 7062 quality control requirements • Procedure 650.5 provides a better defined quality control program than SW-846 Method 7062

TABLE C12-14 (CONTINUED)
COMPARISON OF SW-846 METHOD 7062 AND METHODS MANUAL PROCEDURE 650-5

Methods Manual Procedure 650.5 Section	Corresponding SW-846 Method 7062 Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 7062	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 7062	

TABLE C12-15
COMPARISON OF SW-846 METHOD 7741A AND METHODS MANUAL PROCEDURE 650.6

Methods Manual Procedure 650.6 Section	Corresponding SW-846 Method 7741A Section	Comments
Section 1.0 Scope and Application • Program quality assurance objectives (QAOs) for selenium included as Table 1 • Refers directly to SW-846 Methods 7741A and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Method 7741A is approved for determining the concentration of selenium in waste • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived based on SW-846 Method 7741A (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly and only to SW-846 Method 7741A	Section 2.0 Summary of Method	
Section 3.0 Interferences • Refers directly and only to SW-846 Method 7741A	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 7741A	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 7741A	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 7741A	Section 5.0 Reagents	

TABLE C12-15 (CONTINUED)
COMPARISON OF SW-846 METHOD 7741A AND METHODS MANUAL PROCEDURE 650.6

Methods Manual Procedure 650.6 Section	Corresponding SW-846 Method 7741A Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter Nine
Section 8.0 Procedure • Refers directly and only to SW-846 Method 7741A for procedural requirements • All calibration requirements are summarized in Table 2	Section 7.0 Procedure • Provides sample and standard preparation and analytical procedures • Calibration criteria are provided in SW-846 Method 7000A Subsections 8.2 and 8.3 • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.6 are the same as found in SW-846 Method 7000A. • Procedure 650.6 requires 5 standards in the initial calibration; SW-846 Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading selenium concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	• SW-846 Method 7741A does not address determining the concentration of selenium • SW-846 Method 7000A Subsection 7.4 addresses determining metal concentration	

TABLE C12-15 (CONTINUED)
COMPARISON OF SW-846 METHOD 7741A AND METHODS MANUAL PROCEDURE 650.6

Methods Manual Procedure 650.6 Section	Corresponding SW-846 Method 7741A Section	Comments
Section 10.0 Quality Control • Refers to SW-846 Method 7000A Subsections 8.5, 8.6, and 8.7 • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criterion is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criterion is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80- 120 %R • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000 Section 8.0 • SW-846 Method 7000 Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Laboratory control samples required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Blind audit samples not addressed, however participation on an external performance demonstration program is addressed in SW-846 Chapter One	• Procedure 650.6 quality control requirements meet or exceed SW-846 Method 7741A quality control requirements • Procedure 650.6 provides a better defined quality control program than SW-846 Method 7741A

TABLE C12-15 (CONTINUED)
COMPARISON OF SW-846 METHOD 7741A AND METHODS MANUAL PROCEDURE 650.6

Methods Manual Procedure 650.6 Section	Corresponding SW-846 Method 7741A Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 7741A	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 7741A	

TABLE C12-16
COMPARISON OF SW-846 METHOD 7742 AND METHODS MANUAL PROCEDURE 650.7

Methods Manual Procedure 650.7 Section	Corresponding SW-846 Method 7742 Section	Comments
Section 1.0 Scope and Application • Program quality assurance objectives (QAOs) for selenium included as Table 1 • Refers directly to SW-846 Methods 7742 and 7000A • Requires samples to be analyzed in batches not to exceed 20 samples	Section 1.0 Scope and Application • Method 7742 is approved for determining 3 μg/L to 750 μg/L of selenium in waste • Batch not to exceed 20 samples as per SW-846 Chapter One	• Program QAOs are derived based on SW-846 Method 7742 (precision and accuracy) and regulatory requirements (PRDL and PRQL)
Section 2.0 Summary of Procedure • Refers directly to SW-846 Method 7742 • Requires sample preparation according to Methods Manual Procedure 610.1 before evaporating the samples to near dryness at the end of the digestion	Section 2.0 Summary of Method • Refers to SW-846 Method 3050 for digestion	• SW-846 Method 3051 is provided as an alternative to Method 3050 • Procedure 610.1 is based on SW-846 Method 3051 (see Table C-12-7)
Section 3.0 Interferences • Refers directly and only to SW-846 Method 7742	Section 3.0 Interferences	
Section 4.0 Safety • Responsibilities for safety and health and training	No equivalent section in SW-846 Method 7742	
Section 5.0 Apparatus and Materials • Refers directly and only to SW-846 Method 7742	Section 4.0 Apparatus and Materials	
Section 6.0 Reagents • Refers directly and only to SW-846 Method 7742	Section 5.0 Reagents	

TABLE C12-16 (CONTINUED)
COMPARISON OF SW-846 METHOD 7742 AND METHODS MANUAL PROCEDURE 650.7

Methods Manual Procedure 650.7 Section	Corresponding SW-846 Method 7742 Section	Comments
Section 7.0 Sample Collection, Preservation and Handling • Requires sample collection according to Methods Manual Procedure 120.1 • Requires sample handling and chain-of-custody according to Section 6.0 of the QAPP	Section 6.0 Sample Collection, Preservation and Handling • Refers to SW-846 Chapter Nine for sampling plan considerations • Requires all sample containers prewashed with detergents, acids, and reagents • Allows for both glass and plastic containers • Requires nonaqueous samples to be refrigerated (when possible) and analyzed as soon as possible	• Procedure 120.1 is a program specific procedure developed specifically for the collection of samples from containers of TRU waste through coring and subsampling. Procedure 120.1 refers to SW-846 for guidance and requirements for sampling. • Section 6.0 of the QAPP incorporates applicable sample handling and preservation requirements for samples included in SW-846, Chapter Nine
Section 8.0 Procedure • Refers directly and only to SW-846 Method 7742 for procedural requirements • All calibration requirements are summarized in Table 2	Section 7.0 Procedure • Provides analytical procedures • Calibration criteria are provided in SW-846 Method 7000A Subsections 8.2 and 8.3 • Serial dilution and post-digestion spike criteria are provided in SW-846 Method 7000A Subsection 8.6	• Calibration requirements in Procedure 650.7 are the same as found in SW-846 Method 7000A. • Procedure 650.7 requires 5 standards in the initial calibration; Method 7000A requires a minimum of three standards.
Section 9.0 Calculations • Allows for reading selenium concentration from calibration curve or directly from instrument readout • Requires sample dilution taken into account • Specifies results reported in mg/kg wet weight basis • Provides for conversion to mg/kg dry weight	Subsections 7.6 and 7.7 • Addresses reading the concentration of selenium from the calibration curve and using method of standard additions	

TABLE C12-16 (CONTINUED)
COMPARISON OF SW-846 METHOD 7742 AND METHODS MANUAL PROCEDURE 650.7

Methods Manual Procedure 650.7 Section	Corresponding SW-846 Method 7742 Section	Comments
Section 10.0 Quality Control • Refers to SW-846 Method 7000A Subsections 8.5, 8.6, and 8.7 • Requires formal quality control program • Requires demonstration of acceptable performance prior to analyzing program samples • Specifies equations for calculating analytical precision, accuracy, instrument detection limit, and percent recovery for quality control samples • Method performance samples must be run initially and semiannually, acceptance criteria are Table 1 QAOs • Laboratory blanks must be run once per batch, acceptance criterion is ≤3 x IDL • Matrix spikes must be run once per batch, acceptance criterion is 80-120 %R • Matrix spike duplicates must be run once per batch, acceptance criteria are ≤30 RPD and 80-120 %R • Laboratory control samples must be run once per batch, acceptance criterion is 80-120 %R • Blind audit samples are distributed, analyzed and reported as part of the DOE Performance Demonstration Program	Section 8.0 Quality Control • Refers to SW-846 Method 7000 Section 8.0 • SW-846 Method 7000 Section 8.0 recommends quality control data be maintained and available for easy reference or inspection • SW-846 Chapter One includes equations for calculating precision, accuracy, and method detection limit • Method performance samples not addressed, however SW-846 Chapter One requires demonstration of method performance prior to field analysis • Method blanks required once per batch per SW-846 Chapter One, various acceptance criteria recommended • Matrix spikes required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Matrix spike duplicates required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Laboratory control samples required once per batch in SW-846 Method 7000 Subsection 8.4, acceptance criteria not addressed • Blind audit samples not addressed, however participation on an external performance demonstration program is addressed in SW-846 Chapter One	• Procedure 650.7 quality control requirements meet or exceed SW-846 Method 7742 quality control requirements • Procedure 650.7 provides a better defined quality control program than SW-846 Method 7742

TABLE C12-16 (CONTINUED)
COMPARISON OF SW-846 METHOD 7742 AND METHODS MANUAL PROCEDURE 650.7

Methods Manual Procedure 650.7 Section	Corresponding SW-846 Method 7742 Section	Comments
Section 11.0 Procedure Performance • Refers directly and only to SW-846 Method 7742	Section 9.0 Method Performance	
Section 12.0 References • *Performance Demonstration Program Plan for the Analysis of Solidified Wastes for the Transuranic Waste Characterization Program* (DOE 1995a) • *Transuranic Waste Characterization Quality Assurance Program Plan* (DOE 1995b) • *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (EPA 1995)	Section 10.0 References • See SW-846 Method 7742	

APPENDIX C13

WIPP WASTE INFORMATION SYSTEM DATA DICTIONARY

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
I.	Aspiration Method	None	Method used for aspirating the container prior to shipment per Appendix 1.3.7 of the TRUPACT-II Safety Analysis Report. Method is to be identified as either Option 1, 2, or 3.	A1	Edit check of either 1, 2, or 3. No Blanks	No
II.	Aspiration Period	Days	Time that the container must be aspirated based on the aspiration method selected per Appendix 3.6.11 of the TRUPACT-II Safety Analysis Report	999	Look-up table of container aspiration periods	No
III.	Assay Characterization Method	None	Identifies the site-specific approved characterization method(s) or system(s) that was used to identify and quantify the radionuclide masses	A4	Look-up table listing approved methods	No
IV.	Assay Date	None	The date when the assay was completed at the certification site	Date	None	No
V.	Assembly Identification Number	None	A unique number assigned by the shipper to an assembly. The number consists of the 2-letter site identification code followed by the last two digits of the year and the 4-digit package assembly number.	AAYY9999	Unique number Each container in an assembly (e.g. a seven pack) must be of the same shipping category	No
VI.	Bore Hole Number	None	Disposal location within the WIPP where a remote handled waste canister is disposed.	A6	None	No
VII.	Characterization Methods	None	Identifies the approved EPA characterization methods or systems that were used to obtain the waste characterization data.	A20	Look-up table of characterization techniques	No
VIII.	Column Height	None	The column height within a room/drift at the WIPP which designates the location within the height of the room/drift where the container is emplaced	9	None	No
IX.	Column Number	None	The column number within a room/drift at the WIPP which designates the location within the width of the room/drift where the container is emplaced	9	None	No
X.	Comments	None	Data field to be used to provide additional information	A200	None	No
XI.	Contact Dose Rate of Container (Beta/Gamma)	mrem/hr	Beta/gamma contact dose rate at the surface of the Type A container	9999999	≤ 200 mrem/hr for CH ≤ 1000 rem/hr for RH	No
XII.	Contact Dose Rate of Container (Neutron)	mrem/hr	Neutron contact dose rate at the surface of the Type A container	9999999	≤ 270 mrem/hr for RH	No
XIII.	Contact Dose Rate of Container (Total)	mrem/hr	Total contact dose rate at the surface of the Type A container	9999999	≤ 200 mrem/hr for CH ≤ 1000 rem/hr for RH	Yes

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
XIV.	Contact Dose Rate of Package (Total at Surface)	mrem/hr	Total contact dose rate at the surface of the Type B packaging (TRUPACT-II and RH Cask)	9999999	≤ 200 mrem/hr	No
XV.	Contact Phone	None	Phone number of the shipper technical contact. Number to be listed is to include area code + prefix + number	A12	None	No
XVI.	Container Closure Date	None	Date the container was closed	Date	None	No
XVII.	Container Identification Number	None	A unique identification number assigned to each container	AA99999999999	Unique number	No
XVIII.	Container Liner Punctured	None	Identifies whether the container liner was punctured (if applicable)	Logical (yes/no)	If field 16 had identified the use of a liner, reject if "no"	No
XIX.	Container Liner Type	None	Identifies the type of container liner (if applicable)	A3	Look-up table of standard liners. Look-up table is also to contain the option of "no liner".	No
XX.	Container Type Code	None	A 3-digit container type code	A3	Look-up table of approved container type codes 001 55-gallon drum 002 SWB 003 TDOP 004 Pipe component (6") 005 Pipe component (12") 101 RH-TRU 72-B canister 102 RH-TRU drum canister	No
XXI.	Decay Heat	Watts	The rate of deposition of thermal energy within the container associated with the decay of radionuclides. The terms "decay heat" and "thermal power" are synonymous.	9.99E+99	None	Yes
XXII.	Decay Heat of Package	Watts	Sum of decay heats of containers within the package	9.99E+99	≤ 40 watts per TRUPACT-II package	Yes
XXIII.	Decay Heat Uncertainty	Watts	Uncertainty in the decay heat	9.99E+99	None	Yes
XXIV.	Decay Heat Uncertainty of Package	Watts	Square root of the sum of the squares of the container decay heat uncertainties	9.99E+99	None	Yes
XXV.	Decay Heat (Maximum)	Watts	Sum of the decay heat and decay heat uncertainty for a container	9.99E+99	Look-up table containing decay heat limits for each shipping category	Yes
XXVI.	Disposal Date	None	The date when the container is emplaced in the underground of the WIPP	Date	Date equal to or later than the shipment receipt date	No

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
XXVII.	Dose Rate of Package at 1 Meter	mrem/hr	Total dose rate at 1 meter from the surface of the Type B packaging (required to assign a transport index)	9999999	None	No
XXVIII.	Dose Rate of Package at 2 Meters	mrem/hr	Total dose rate at 2 meters from the surface of the Type B packaging (TRUPACT-II and RH Cask)	9999999	≤ 10 mrem/hr	No
XXIX.	DOT Description	None	U.S. Department of Transportation description for the Uniform Hazardous Waste Manifest	Memo	None	No
XXX.	Drift Number	None	The geotechnical location within the WIPP where a container is emplaced	A6	None	No
XXXI.	EPA ID	None	U.S. Environmental Protection Agency's number for the waste site having responsibility for shipment of the waste	A15	Look-up table containing the corresponding name and address of the generator	No
XXXII.	Filter Install Date	None	The date the filter was installed in the container	Date	None	No
XXXIII.	Filter Model	None	Vendor model number of the filter used to vent a container	A6	Look-up table listing approved filters	No
XXXIV.	Gas Generation Completion Date	None	The date of test completion for a container shipping category	Date	None	No
XXXV.	Gas Generation Rate - Measured H_2 + CH_4	moles/s	Measured hydrogen and methane gas generation rate for a container shipping category	9.9E+99	Look-up table containing hydrogen and methane gas generation rate limits as a function of packaging layers, content code, and radionuclide activity	No
XXXVI.	Gas Generation Rate - Measured Total	moles/s	Measured total gas generation rate for a container shipping category	9.9E+99	Look-up table containing total gas generation rate limits as a function of packaging layers, content code, and radionuclide activity	No
XXXVII.	Hazardous ID Code	None	Hazardous waste EPA codes listed for the container. This is a multiple occurring field.	A4	Look-up table listing the codes	No
XXXVIII.	Headspace Gas Innermost Layer: Analyte Name	None	The element, ion, or compound an analysis seeks to determine; the element of interest	A20	Look-up table containing the 29 targeted analytes (this is a multiple occurring data field)	No
XXXIX.	Headspace Gas Innermost Layer: Characterization Method	None	Identifies the characterization method or system that was used to obtain the innermost layer gas data.	A30	Look-up table listing approved methods	No

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
XL.	Headspace Gas Innermost Layer: Date Analyzed	None	Date gas of innermost layer was analyzed	Date	≤ 34 days from date sampled	No
XLI.	Headspace Gas Innermost Layer: Date Sampled	None	Date gas of innermost layer was sampled	Date	None	No
XLII.	Headspace Gas Innermost Layer: Flammable Gas Concentrations	Volume Percent	Concentrations of flammable gases in the innermost layer including but not limited to H_2 and CH_4	999	≤ 5% (H_2 + CH_4)	No
XLIII.	Headspace Gas Innermost Layer: Identification	None	Innermost layers of confinement must be consecutively numbered and labeled starting with 1 as they are sampled and removed from the waste container during visual examination. The sample collected from each innermost layer of confinement must be referenced to that particular inner most layer of confinement and to the waste container.	99	None	No
XLIV.	Headspace Gas Innermost Layer: VOC Concentrations	ppmv	Concentrations of the 29 target VOCs in the innermost layer	999999	This is a multiple occurring data field	No
XLV.	Headspace Gas: Analyte Name	None	The element, ion, or compound an analysis seeks to determine; the element of interest. This is a multiple occurring field.	A20	Look-up table containing the 29 targeted VOC analytes	No
XLVI.	Headspace Gas: Characterization Method	None	Identifies the characterization method or system used to obtain the headspace gas data.	A30	Look-up table listing approved methods	No
XLVII.	Headspace Gas: Date Analyzed	None	Date headspace gas was analyzed	Date	≤ 34 days after sampling date	No
XLVIII.	Headspace Gas: Date Sampled	None	Date headspace gas was sampled	Date	None	No
XLIX.	Headspace Gas: Flammable Gas Concentrations	Volume Percent	Concentrations of H_2 plus CH_4 flammable gases in the headspace	A20	≤ 5% (H_2 + CH_4)	No
L.	Headspace Gas: Total Flammable VOC Concentration	ppmv	Total concentration of target flammable VOCs in the headspace.	999999	≤ 500 ppm total flammable VOCs	Yes

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
LI.	Headspace Gas: VOC Concentrations	ppmv	Concentrations of the 29 target VOCs in the headspace. This is a multiple occurring field.	999999	No limits for the target VOCs except for the following: carbon tetrachoride ≤ 7510 chloroform ≤ 6325 1,1-dichloroethene ≤ 28750 1,2-dichloroethane ≤ 9100 methylene chloride ≤ 368500	Yes
LII.	ICV Closure Date	None	The date when the inner containment vessel was closed	Date	None	No
LIII.	Item Description Code	None	A site specific numerical code applied to individual waste forms to identify their source	A4	Look-up table listing approved item description codes taken from the site's certification plan	No
LIV.	Layers of Packaging	None	Identifies the number of layers of plastic confinement within a container	9	None	No
LV.	Manifest Document Number	None	Identifies the manifest number assigned to the waste shipment	A5	None	No
LVI.	Nondestructive Examination	None	The radiometric examination of retrievably stored waste	Logical (yes/no)	100% sampling of retrievably stored waste	No
LVII.	Packaging Serial Number	None	The TRUPACT-II , cask, or other Type B shipping container number	A3	None	No
LVIII.	Panel Number	None	The panel number in which the container is disposed	A2	None	No
LIX.	PCB Concentration	ppm	The concentration of polychlorinated biphenyls (PCBs) in the container	9999	≤ 50 ppm No blanks	No
LX.	Plutonium-239 Equivalent Activity	PE-Ci	The plutonium-239 equivalent activity per container	9.9E+99	≤ 80 PE-Ci per drum ≤ 130 PE-Ci per SWB ≤ 1000 PE-Ci per canister	Yes
LXI.	Plutonium-239 FGE per Type B RH-TRU 72-B Waste Shipping Package (Total)	FGE	The Plutonium-239 FGE plus the Plutonium-239 FGE uncertainty per RH-TRU 72-B waste shipping package	9.9E+99	≤ 325 FGE	Yes
LXII.	Plutonium-239 Fissile Gram Equivalent	FGE	The Plutonium-239 fissile gram equivalent per container	9.9E+99	≤ 200 FGE per drum ≤ 325 FGE per SWB ≤ 325 FGE per canister ≤ 200 FGE per pipe overpack package	Yes

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
LXIII.	Plutonium-239 Fissile Gram Equivalent (Total)	FGE	The Plutonium-239 FGE plus twice the Plutonium-239 FGE uncertainty per container	9.9E+99	≤ 200 FGE per drum ≤ 325 FGE per SWB ≤ 325 FGE per canister ≤ 200 FGE per pipe overpack package	Yes
LXIV.	Plutonium-239 Fissile Gram Equivalent per Type B Package	FGE	Sum of the Plutonium-239 fissile gram equivalent per container per Type B package	9.9E+99	≤ 325 FGE ≤ 2800 FGE for pipe overpack packages	Yes
LXV.	Plutonium-239 Fissile Gram Equivalent per Type B Package for CH-TRU (Total)	FGE	The Plutonium-239 FGE plus twice the Plutonium-239 FGE uncertainty per Type B package for CH-TRU	9.9E+99	≤ 325 FGE ≤ 2800 FGE for pipe overpack packages	Yes
LXVI.	Plutonium-239 Fissile Gram Equivalent Uncertainty	FGE	The Plutonium-239 fissile gram equivalent uncertainty per container	9.9E+99	None	Yes
LXVII.	Plutonium-239 Fissile Gram Equivalent Uncertainty per Type B Package	FGE	Square root of the sum of the squares of the Plutonium-239 fissile gram equivalent uncertainties per container per Type B package	9.9E+99	None	Yes
LXVIII.	Radionuclide Activity	Curies	Activity of the individual radionuclides	9.9E+99	None	No
LXIX.	Radionuclide Activity Uncertainty	Curies	Uncertainty in the activity of the individual radionuclides	9.9E+99	None	No
LXX.	Radionuclide Activity Uncertainty (Total)	Curies	Uncertainty in the summation of activities of the individual radionuclides within a container	9.9E+99	None	Yes
LXXI.	Radionuclide Highway Route Controlled Quantity	None	A highway route controlled quantity is that quantity of normal form material in a type B package which exceeds 3000 times the A2 value of the radionuclides as specified in 49 CFR 173.443 or 30,000 curies, whichever is least	Logical (yes/no)	yes if > 1 no if ≤ 1	Yes
LXXII.	Radionuclide Mass	Grams	Mass of the individual radionuclides	9.9E+99	None	Yes
LXXIII.	Radionuclide Mass Uncertainty	Grams	Uncertainty in the mass of the individual radionuclides	9.9E+99	None	Yes
LXXIV.	Radionuclide Reportable Quantity	None	A reportable quantity is that quantity of material in a type B package which equals or exceeds the quantity listed in the Appendix to 49 CFR 172.101	Logical (yes/no)	None	Yes
LXXV.	Radionuclide Symbol	None	The radionuclide the analysis seeks to determine	A7	Look-up table containing the predominant radionuclides (this is a multiple occurring data field)	No

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
LXXVI.	Reporting Flag	None	Designator which is used by the analytical laboratory to identify detection levels of the various analytes within a sample	A2	Coded to indicate appropriate flag per QAPP requirements	No
LXXVII.	Room Number	None	The room number within a panel in which the container is emplaced	A1	None	No
LXXVIII.	Row Number	None	The row number within a room/drift at the WIPP which designates the location within the length of the room/drift where the container is emplaced	A4	None	No
LXXIX.	Shipment Certification Date	None	The date when the shipment was certified for transport to the WIPP	Date	Shipment certification date ≥ WAC certification date	No
LXXX.	Shipment Number	None	Number assigned to the shipment	A12	Unique	No
LXXXI.	Shipment Receipt Date	None	The date the waste shipment was received at the WIPP	Date	Shipment receipt date ≥ shipment send date	No
LXXXII.	Shipment Send Date	None	The date the waste shipment left the shipper site (to be entered at the time of receipt at the WIPP using date on manifest)	Date	Shipment send date ≥ shipment certification date	No
LXXXIII.	Shipping Category	None	A category under which a content code is shipped	A8	All containers within a package must be of the same shipping category	No
LXXXIV.	Site Address	None	Address of the waste site having responsibility for shipment of the waste	A50	None	No
LXXXV.	Site Name	None	Name of the site which shipped the waste	A30	None	No
LXXXVI.	Solid Waste Metals: Analyte Name	None	The element, ion, or compound an analysis seeks to determine; the element of interest	A50	Look-up table of target solid waste metal analytes (this is a multiple occurring field)	No
LXXXVII.	Solid Waste Metals: Concentration	mg/kg	The concentration of the solid waste metal analytes the analysis seeks to determine	9.99E+99	None	No
LXXXVIII.	Solid Waste Metals: Date Analyzed	None	The date solid waste metals were analyzed	Date	≤ 180 days after sampling date ≤ 28 days for mercury	No
LXXXIX.	Solid Waste Metals: Date Sampled	None	The date solid waste metals were sampled	Date	None	No
XC.	Solid Waste Semi-VOC: Analyte Name	None	The element, ion, or compound an analysis seeks to determine; the element of interest	A50	Look-up table of target solid waste semi-VOC analytes (this is a multiple occurring field)	No
XCI.	Solid Waste Semi-VOC: Concentration	mg/kg	The concentration of the solid waste semi-VOC analytes the analysis seeks to determine	9.99E+99	Look-up table of target solid waste semi-VOC analytes	No

WWIS DATA DICTIONARY (DRAFT Version 0.1)

NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
XCII.	Solid Waste Semi-VOC: Date Analyzed	None	The date solid waste semi-VOCs were analyzed	Date	≤ 180 days after sampling date	No
XCIII.	Solid Waste Semi-VOC: Date Sampled	None	The date solid waste semi-VOCs were sampled	Date	None	No
XCIV.	Solid Waste VOC: Analyte Name	None	The element, ion, or compound an analysis seeks to determine; the element of interest	A50	Look-up table of target solid waste VOC analytes (this is a multiple occurring field)	No
XCV.	Solid Waste VOC: Concentration	mg/kg	The concentration of the solid waste VOC analytes the analysis seeks to determine	9.99E+99	Look-up table of target solid waste VOC analytes	No
XCVI.	Solid Waste VOC: Date Analyzed	None	The date solid waste VOCs were analyzed	Date	≤ 54 days after sampling date	No
XCVII.	Solid Waste VOC: Date Sampled	None	The date solid waste VOCs were sampled	Date	None	No
XCVIII.	Surface Contamination of Container (Alpha)	dpm/cm^2	The removable alpha emitting radionuclide surface contamination on waste containers	9.9E+99	≤ 20 dpm/100 cm^2 (alpha)	No
XCIX.	Surface Contamination of Container (Beta/Gamma)	dpm/cm^2	The removable beta/gamma emitting radionuclide surface contamination on waste containers	9.99E+99	≤ 200 dpm/100 cm^2 (beta/gamma)	No
C.	Technical Contact	None	Name of the person at the shipper site who is the technical contact for the site. Information is to be recorded based on the last name, first name, and middle initial (if available)	A20	None	No
CI.	Tentatively Identified Compounds (TICs): Date Analyzed	None	The date the TICs were analyzed	Date	See limits in fields 36, 77, 80, and 83	No
CII.	Tentatively Identified Compounds (TICs): Date Sampled	None	The date the TICs were sampled	Date	None	No
CIII.	Tentatively Identified Compounds: Analyte Name	None	Compounds not intiailly anticipated to be in the waste stream but subsequently identified in either the headspace gas or solid waste analysis	A30	Look-up table of TICs identified in 40 CFR 264, Appendix IX	No
CIV.	Tentatively Identified Compounds: Concentration (mg/kg)	mg/kg	If applicable, the concentrations of compounds not initially anticipated to be in the waste stream but subsequently identified in either the headspace gas or solid waste analysis	9.99E+99	None	No
CV.	Tentatively Identified Compounds: Concentration (ppmv)	ppmv	If applicable, the concentrations of compounds not initially anticipated to be in the waste stream but subsequently identified in either the headspace gas or solid waste analysis	9.99E+99	None	No

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NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
CVI.	Thermal Power Density	Watts/ft^3	The thermal power per unit volume of the container	9.9E+99	A flag is to be raised ≥ 0.1 watt/ft3 when averaged over the container	Yes
CVII.	Transporter EPA ID	None	U.S. Environmental Protection Agency identification number for the transporter of the waste shipment	A15	Look-up table containing the corresponding name and address of the transporter	No
CVIII.	Transporter Name	None	The name of the transporter of the waste shipment	A25	None	No
CIX.	TRU Alpha Activity	Curies	Summation of the alpha activities of the transuranic (TRU) isotopes within a container	9.9E+99	None	Yes
CX.	TRU Alpha Activity Concentration	Curies per gram	Summation of the alpha activities of the transuranic isotopes divided by the mass of the waste within a container (excluding the masses of the container, liner [if applicable], and shielding [if applicable])	9.9E+99	> 100 nCi/gram	Yes
CXI.	TRU Alpha Activity Concentration Uncertainty	Curies per gram	Uncertainty in the TRU waste alpha activity concentration	9.9E+99	None	
CXII.	TRU Alpha Activity Uncertainty	Curies	Uncertainty in the TRU waste alpha activity	9.9E+99	None	Yes
CXIII.	TRUCON Content Code	None	The TRUCON content code which describes the contents of the container based on the site Item Description Code.	A6	Look-up table of approved content codes	No
CXIV.	TRUPACT-II OCA Lid Number	None	The TRUPACT-II OCA lid number	A8	None	No
CXV.	Vehicle Type	None	The type of vehicle used to transport the waste.	A1	Look-up table containing either "R" for railcar or "T" for truck	No
CXVI.	Vent/Puncture Date	None	The date when the container was vented and, if applicable, the liner punctured	Date	None	No
CXVII.	Verification Date	None	The date when the radiography or visual inspection was completed at the certification site	Date	None	No
CXVIII.	Verification Method	None	Identifies if radiography or visual inspection was used to identify and quantify the radionuclide masses	A4	Radiography or Visual Inspedtion	No
CXIX.	Visual Examination of Container	None	A statistical sample of retrievably stored waste streams must be examined visually. This field serves to identify whether visual examination was performed.	Logical (yes/no)	None	No

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NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
CXX.	WAC Certification Date	None	The date when the certifying official signed the certification statement for the container	Date	None	No
CXXI.	WAC Certification Site	None	The site where the container was certified shall be identified by the 2-character site code as in Table B-3 of the WIPP WAC	A2	Look-up table of site identification codes	No
CXXII.	WAC Exception Number	None	A number granted to the shipper for an exception to the WAC. The number consists of a 2-character site code plus the last two numbers of the year the request was made plus a sequential number beginning with one each year.	AAYYXXX	Look-up table containing approved WAC exception numbers	No
CXXIII.	WAC Revision Number	None	Revision number of the WIPP-WAC to which the waste was certified	A2	≥ Revision 4	No
CXXIV.	Waste Container Fill Factor	Percentage	Estimated percentage of the waste container volume occupied by the waste (zero percent is interpreted as dunnage)	999	Lower bound = 0 Upper bound = 100	No
CXXV.	Waste Handling Code	None	The code is "CH" for contact-handled TRU waste or "RH" for remote-handled TRU waste	A2	None	No
CXXVI.	Waste Material Parameters	None	Waste materials having the potential of impacting performance assessment	A40	Look-up table of waste material parameters	No
CXXVII.	Waste Matrix Code	None	Numerical codes used to classify mixed waste at DOE facilities	A4	Look-up table of waste matrix codes	No
CXXVIII.	Waste Matrix Code Date	None	The date the site Project review of the waste matrix code has been completed	Date	None	No
CXXIX.	Waste Matrix Code Group	None	The group identification taken from the Baseline Inventory Report	A2	None	No
CXXX.	Waste Stream MWIR ID	None	The waste stream MWIR identification number	A6	None	No
CXXXI.	Waste Stream Profile Form Number	None	The waste stream profile form number	9999	Look-up table of approved waste stream profile form numbers	No
CXXXII.	Waste Stream WIPP ID	None	The waste stream WIPP identification number	A6	None	No
CXXXIII.	Waste Type Code	None	The code is "TRU" for non-mixed waste and "MTRU" for mixed waste	A4	None	No
CXXXIV.	Weight (empty container, liner, and shielding)	kg	The weight of the empty container including liner & shielding if applicable	999999.9	None	No
CXXXV.	Weight (Gross)	kg	The gross weight of a container	999999.9	≤ 1000 lbs per drum ≤ 4000 lbs per SWB ≤ 6450 lbs per TDOP ≤ 8000 lbs per canister	No

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NO	FIELD	UNITS	DEFINITION	FORMAT	LIMITS, EDITS, & RANGE CHECKS	CALCULATED
CXXXVI.	Weight of a TRUPACT-II Shipment	kg	The weight of the TRUPACT-II packages including their payloads per railcar or truck	999999.9	The sum of the weights of the TRUPACT-II packages (unique for each serial number) including their payloads per railcar or truck	Yes
CXXXVII.	Weight of Payload Assembly	kg	The weight of a seven pack payload assembly	999999.9	Equal to the sum of the gross weights of the seven drums contained in the payload assembly	Yes
CXXXVIII.	Weight of TRUPACT-II	kg	The weight of a TRUPACT-II package (unique per serial number) including its payload	999999.9	The sum of the weights of the TRUPACT-II (using a look-up table of TRUPACT-II weights per serial number) and the payload.	Yes
CXXXIX.	Weight of Waste	kg	The weight of the waste inside a container	999999.9	None	Yes
CXL.	Weight of Waste Material Parameters	kg	The estimated weight of the waste material parameters	999999.9	Sum of the estimated waste material parameter weights should equal the weight of the waste	Yes
CXLI.	Weight of Waste Uncertainty	kg	The uncertainty in the weight of the waste inside a container	999999.9	None	Yes
CXLII.	Weight Uncertainty (empty container, liner, and shielding)	kg	The uncertainty in the weight of the empty container including liner & shielding if applicable	999999.9	None	No
CXLIII.	Weight Uncertainty (Gross)	kg	The uncertainty in the gross weight of a container	999999.9	None	No

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* NOTES - FIELD SPECIFIC

III. The method used for this designator is to be determined.

IV. Data field will include a list of acronyms for the characterization equipment used.

X. No more than 5% of the RH canisters received at the WIPP are allowed to have dose rates > 100 rem/hr. This requirement necessitates that a running calculation of the percentage be performed in the background. If the percentage exceeds 5%, a flag will be raised. Prior approval by the WIPP is required before RH canisters having dose rates > 100 rem/hr but ≤ 1000 rem/hr may be shipped to the WIPP.

XVI. The look-up table used for this field will also include the internal volume of each container listed. This volume is required for the calculation of thermal power density (see field #90).

XVIII. Reporting of thermal power per container will be made using the calculated value of the container's decay heat.

XXIX. A unique generator name and address corresponds to each generator EPA ID.

XXXVIa. The 11 flammable VOCs, a subset of the 29 target VOC analytes, need to be identified in order to calculate the total flammable VOC concentration required by field #39a.

XXXIX. A flag will be raised if any of the VOC headspace gas concentration limits are exceeded. Based on a running average of these concentrations, a determination will be made whether to accept the container with the outerlying VOC(s).

XXXIXa. A flag will be raised if any of the flammable VOC headspace gas concentration limits are exceeded. Based on a running average of these concentrations, a determination will be made whether to accept the container with the outerlying VOC(s).

LXIV. A running total of RH activity needs to be performed. Total activity of RH waste cannot exceed 5,100,000 curies.

XCI. A unique transporter name and address corresponds to each transporter EPA ID.

CVII. A running total of TRU waste volume, in ft^3 and m^3, needs to be performed. Total volume of TRU waste (CH & RH) cannot exceed 6.2E+6 cubic feet.

NOTES - GENERIC

- Since SI units will be used in all reports, conversion constants need to be identified for the purpose of implementing this requirement. This includes curies to becquerels, pounds to kilograms, grams to kilograms, feet to meters, centimeters to meters, etc.
- Approved project plans are required before waste characterization data will be accepted for waste certification. Interim QAPjPs will suffice.
- Data calculated by the sites will be verified in the background; i.e., the data (whether measured or calculated) is the property of the sites, any calculations performed by the WWIS are for purposes of verification only.