

ATTACHMENT B4

**TRU MIXED WASTE CHARACTERIZATION USING
ACCEPTABLE KNOWLEDGE**

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ATTACHMENT B4 TRU MIXED WASTE CHARACTERIZATION USING ACCEPTABLE KNOWLEDGE

1 B4-1 Introduction

2 The Resource Conservation and Recovery Act (RCRA) regulations codified in 40 CFR Parts
3 260 through 265, 268, and 270, and the New Mexico Hazardous Waste Management
4 Regulations in Title 20 New Mexico Administrative Code, Chapter 4, Part 1, (20.4.1 NMAC)
5 Subparts I through VI, Subpart VIII, and Subpart IX, authorize the use of acceptable knowledge
6 (AK) in appropriate circumstances by waste generators, or treatment, storage, or disposal
7 facilities to characterize hazardous waste. Acceptable knowledge is described in *Waste*
8 *Analysis: EPA Guidance Manual for Facilities That Generate, Treat, Store and Dispose of*
9 *Hazardous Waste* (EPA, 1994). Acceptable knowledge, as an alternative to sampling and
10 analysis, can be used to meet all or part of the waste characterization requirements under the
11 RCRA (EPA, 1994).

12 EPA's 1994 Waste Analysis Guidance Manual broadly defines the term "acceptable knowledge"
13 to include a number of techniques used to characterize transuranic (TRU) mixed waste, such
14 as process knowledge, whereby detailed information on the wastes is obtained from existing
15 published or documented waste analysis data or studies conducted on hazardous waste
16 generated by processes similar to that which generated the waste; facility records of analysis
17 acquired prior to performed before the effective date of RCRA; and other supplemental
18 sampling and waste analysis data obtained from generators of similar wastes that send their
19 wastes off-site for treatment, storage, or disposal (EPA, 1994). Radiography If a
20 generator/storage site determines that AK alone is insufficient to accurately characterize a
21 waste, the site may use radiography and/or visual examination, headspace gas sampling and
22 analysis, and homogeneous waste sampling and analysis (specified in Permit Attachment B1)
23 are used to complete the waste characterization process and satisfy acquire supplemental
24 sampling and analysis data to meet the requirements of the Waste Analysis Plan (WAP)
25 specified in Permit Attachment B. Acceptable knowledge is used in TRU mixed waste
26 characterization activities in three five ways:

- 27 ● To delineate TRU mixed waste streams
- 28 ● To assess whether TRU mixed wastes comply with the Treatment, Storage, and
29 Disposal Facility Waste Acceptance Criteria (TSDF-WAC)
- 30 ● To assess if whether TRU mixed heterogeneous debris wastes exhibit a toxicity
31 hazardous characteristic (20.4.1.200 NMAC, incorporating 40 CFR §261.24
32 Subpart C)
- 33 ● To assess if whether TRU mixed wastes are listed (20.4.1.200 NMAC,
34 incorporating 40 CFR §261.34 Subpart D)
- 35 ● To estimate waste material parameter weights

1 Sampling and analysis shall ~~may~~ be performed ~~after waste packaging to confirm~~ ~~augment the~~
2 ~~characterization of wastes based on~~ acceptable knowledge ~~when an AK Sufficiency~~
3 ~~Determination has not been requested by the generator/storage site or, if requested, has not~~
4 ~~been granted by the Permittees (see Section B4-3d).~~ ~~and to update and modify initial AK~~
5 ~~assessments.~~ Sampling and analysis ~~includes~~ ~~consists of~~ radiography, visual examination,
6 headspace gas, and homogeneous waste sampling and analysis. TRU mixed waste streams
7 shall undergo applicable provisions of the acceptable knowledge process prior to management,
8 storage, or disposal by the Permittees at WIPP.

9 B4-2 Acceptable Knowledge Documentation

10 The Permittees shall obtain from each Department of Energy (DOE) TRU mixed waste
11 generator/storage site (**site**) a logical sequence of acceptable knowledge information that
12 progresses from general facility information (TRU Mixed Waste Management Program
13 Information) to more detailed waste-specific information (TRU Mixed Waste Stream
14 Information). Traceability of acceptable knowledge information for a selected ~~container drum~~ in
15 the audited Waste Summary Category Group(s) will be examined during the Permittees' audit of
16 a site (Section B4-3f). The consistent presentation of acceptable knowledge documentation
17 among sites in auditable records¹ will allow ~~Waste Isolation Pilot Plant (WIPP) personnel~~ ~~the~~
18 ~~Permittees~~ to verify the completeness and adequacy of acceptable knowledge for TRU mixed
19 waste ~~characterization~~ during the audit process. The Permittees shall implement the acceptable
20 knowledge process as specified in this Permit to characterize TRU mixed wastes ~~and obtain~~
21 ~~sufficient waste characterization data to demonstrate compliance with the Permit.~~ ~~The New~~
22 ~~Mexico Environment Department (NMED)~~ may independently validate the implementation of
23 and compliance with applicable provisions of the WAP at each generator/storage site by
24 participation in the Permittees' Audit and Surveillance Program (Permit Attachment B6). The
25 Permittees shall provide NMED with current audit schedules and notify NMED in writing no later
26 than thirty (30) calendar days prior to each audit. NMED may choose to accompany the
27 Permittees on any audit of the WAP implementation.

28 The following sections include the information the Permittees will require for each site to
29 characterize TRU mixed waste using acceptable knowledge. Because waste generating
30 processes are site-specific, sites shall, as necessary, ~~supplement~~ ~~augment~~ the required
31 acceptable knowledge records with additional ~~supporting~~ information (see Section B4-2c,
32 ~~Supplemental Supporting~~ Acceptable Knowledge Information). If the required information is not
33 available for a particular waste ~~stream~~, ~~supplemental information shall be obtained and the~~
34 ~~waste stream~~ will not be ~~eligible for an AK Sufficiency Determination as specified in Section B4-~~
35 ~~3d~~ ~~accepted for management, storage, or disposal at the WIPP facility as a retrievably stored~~
36 ~~waste (i.e., the waste will be characterized as specified in Permit Attachment B, Section B-~~
37 ~~3d(1)).~~

¹ "Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit.

1 B4-2a Required TRU Mixed Waste Management Program Information

2 TRU mixed waste management program information shall clearly define waste categorization
3 schemes and terminology, provide a breakdown of the types and quantities of TRU mixed waste
4 that are generated and stored at the site, and describe how waste is tracked and managed at
5 the site, including historical and current operations. Information related to TRU mixed waste
6 certification procedures and the types of documentation (e.g., waste profile forms) used to
7 summarize acceptable knowledge shall also be provided. The following information shall be
8 included as part of the acceptable knowledge written record:

- 9 ● Map of the site with the areas and facilities involved in TRU mixed waste
10 generation, treatment, and storage identified
- 11 ● Facility mission description as related to TRU mixed waste generation and
12 management (e.g., nuclear weapons research may involve metallurgy,
13 radiochemistry, and nuclear physics operations that result in specific waste
14 streams)
- 15 ● Description of the operations that generate TRU mixed waste at the site (e.g.,
16 plutonium recovery, weapons design, or weapons fabrication)
- 17 ● Waste identification or categorization schemes used at the facility (e.g., item
18 description codes, content codes)
- 19 ● Types and quantities of TRU mixed waste generated, including historical
20 generation through future projections
- 21 ● Correlation of waste streams generated from the same building and process, as
22 appropriate (e.g., sludge, combustibles, metals, and glass)
- 23 ● Waste certification procedures for retrievably stored and newly generated wastes
24 to be sent to the WIPP facility

25 B4-2b Required TRU Mixed Waste Stream Information

26 The Permittees may use acceptable knowledge to delineate site-specific waste streams. For
27 each TRU mixed waste stream, the Permittees shall require sites to compile all process
28 information and data that support the acceptable knowledge used to characterize that waste
29 stream. The type and quantity of supporting documentation will vary by waste stream,
30 depending on the process generating the waste and site-specific requirements imposed by the
31 Permittees. At a minimum, the waste process information shall include the following written
32 information:

- 33 ● Area(s) and/or building(s) from which the waste stream was or is generated
34
- 35 ● Waste stream volume and time period of generation (e.g., 100 standard waste
36 boxes of retrievable stored waste generated from June 1977 through December
37 1977)

- 1 ● Waste generating process described for each building (e.g., batch waste stream
2 generated during decommissioning operations of glove boxes), including
3 processes associated with U134 waste generation, if applicable.

- 4 ● Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific
5 building to a size reduction facility to a container storage area). In the case of
6 research/development, analytical laboratory waste, or other similar processes
7 where process flow diagrams cannot be created, a description of the waste
8 generating processes, rather than a formal process flow diagram, may be
9 included if this modification is justified and the justification is placed in the
10 auditable record

- 11 ● Material inputs or other information that identifies the chemical content of the
12 waste stream and the physical waste form (e.g., glove box materials and
13 chemicals handled during glove box operations; data obtained through visual
14 examination of newly generated waste that later undergoes radiography;
15 information demonstrating neutralization of U134 [hydrofluoric acid] and waste
16 compatibility, etc.)

17 The acceptable knowledge written record shall include a summary that identifies all sources of
18 waste **characterization** information used to delineate the waste stream. The basis and rationale
19 for delineating each waste stream, based on the parameters of interest, shall be clearly
20 summarized and traceable to referenced documents. Assumptions made in delineating each
21 waste stream also shall be identified and justified. If discrepancies exist between required
22 information, then sites shall apply all hazardous waste ~~codes~~ **numbers** indicated by the
23 information to the subject waste stream unless the sites choose to justify an alternative
24 assignment and document the justification in the auditable record. The Permittees shall obtain
25 from each site, at a minimum, procedures that comply with the following acceptable knowledge
26 requirements:

- 27 ● Procedures for identifying and assigning the physical waste form of the waste
- 28 ● Procedures for delineating waste streams and assigning Waste Matrix Codes
- 29 ● Procedures for resolving inconsistencies in acceptable knowledge documentation
- 30 ● ~~Procedures~~ **If an AK Sufficiency Determination is not being sought, procedures**
31 for ~~confirming~~ **augmenting** acceptable knowledge information through headspace
32 gas sampling and analysis, visual examination and/or radiography, and
33 homogeneous waste sampling and analysis
- 34 ● ~~Procedures~~ **For newly generated waste, procedures** describing ~~management~~
35 **process** controls used to ensure prohibited items (specified in the WAP, Permit
36 Attachment B) are documented and managed
- 37 ● ~~Procedures~~ **If an AK Sufficiency Determination is not being sought, procedures** to
38 ensure radiography and visual examination include a list of prohibited items that
39 the operator shall verify are not present in each container of waste (e.g., liquids

1 exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible
2 wastes)

- 3 ● Procedures to document how changes to Waste Matrix Codes, waste stream
4 assignment, and associated Environmental Protection Agency (EPA) hazardous
5 waste numbers based on material composition are documented for any waste

6 ~~● Procedures for newly generated waste shall describe how acceptable knowledge
7 is confirmed using either the visual examination technique or radiography (or VE
8 in lieu of radiography). Procedures shall also describe the criteria for selecting
9 either radiography or VE to ensure there is documentation and adequate
10 justification of the process selected~~

- 11 ● Procedures for assigning EPA hazardous waste numbers to TRU mixed waste
12 streams
- 13 ● Procedures for estimating waste material parameter weights

14 B4-2c ~~Supplemental~~ Supporting Acceptable Knowledge Information

15 The generator/storage sites shall obtain ~~supplemental~~ supporting acceptable knowledge
16 information. The amount and type of ~~supplemental~~ supporting information is site-specific and
17 cannot be mandated, but sites shall collect information as appropriate to ~~support~~ augment
18 required information. Adequacy of ~~supplemental~~ supporting information shall be assessed by
19 the Permittees during audits (Section B4-3f(g)). Sites will use this information to compile the
20 acceptable knowledge written record. ~~Supplemental~~ Supporting acceptable knowledge
21 documentation that may be used (if available) in addition to the required information specified
22 above include, but are not limited to, the following information:

- 23 ● Process design documents (e.g., Title II Design)
- 24 ● Standard operating procedures that may include a list of raw materials or
25 reagents, a description of the process or experiment generating the waste, and a
26 description of wastes generated and how the wastes are managed at the point of
27 generation
- 28 ● Preliminary and final safety analysis reports and technical safety requirements
- 29 ● Waste packaging logs
- 30 ● Test plans or research project reports that describe reagents and other raw
31 materials used in experiments
- 32 ● Site databases (e.g., chemical inventory database for Superfund Amendments
33 and Reauthorization Act Title III requirements)
- 34 ● Information from site personnel (e.g., documented interviews)
- 35 ● Standard industry documents (e.g., vendor information)

- 1 ● Analytical data relevant to the waste stream, including results from fingerprint
2 analyses, spot checks, or routine verification sampling. This may also include
3 new information ~~acquired apart from the confirmatory process~~ which
4 supplements **augments** required information (e.g., visual examination not
5 performed in compliance with the WAP)

- 6 ● Material Safety Data Sheets, product labels, or other product package
7 information

- 8 ● Sampling and analysis data from comparable or surrogate waste streams (e.g.,
9 equivalent nonradioactive materials)

- 10 ● Laboratory notebooks that detail the research processes and raw materials used
11 in an experiment

12 For waste containers that belong to LANL sealed sources waste streams, **these containers do**
13 **not require headspace gas sampling and analysis** ~~and meet the criteria of Permit Attachment B,~~
14 ~~Section B-3a(1)(iii)~~, **if** the following information is required as part of the AK documentation:

- 15 ● Documentation that the waste container contents meet the definition of sealed
16 sources per 10 CFR §30.4 and 10 CFR §835.2 (effective January 1, 2004).

- 17 ● Documentation of the certification of the sealed sources as U.S. Department of
18 Transportation Special Form Class 7 (Radioactive) Material per 49 CFR
19 §173.403 (effective October 1, 2003).

- 20 ● Documentation of contamination survey results that validate the integrity of each
21 sealed source per 10 CFR §34.27 (effective January 1, 2004).

- 22 ● AK documentation does not indicate the use of VOCs or VOC-bearing materials
23 as constituents of the sealed sources.

- 24 ● The outer casing of each sealed source must be of a non-VOC bearing material,
25 which must be verified ~~using the VE technique~~ at the time of packaging.

- 26 ● AK Documentation shall also include but shall not be limited to, as available and
27 as necessary to determine the hazardous constituents associated with sealed
28 sources, the following: source manufacturer's sales catalogues, original
29 purchase records, source manufacturer's fabrication documents, source
30 manufacturer's drawings, source manufacturer's fuel capture assembly reports,
31 source manufacturer's operational procedures for cleanliness requirements,
32 source manufacturer's shipping documents, source manufacturer's welding
33 records, transuranic batch material records, and information from national
34 databases (e.g., NMMSS). All of this information may not and need not be
35 available for each source, but sufficient information must be included in the
36 auditable record to derive an adequate understanding of source construction and
37 history to ensure that no VOCs are present in association with the sealed source
38 itself that would render the source hazardous. If AK data indicate that assignment

1 of a hazardous waste number related to organic materials is required in
2 association with a source, this specific source **will be assigned to a separate**
3 **waste stream and that waste stream will** be subject to **representative** headspace
4 gas sampling **unless a separate AK Sufficiency Determination is approved by the**
5 **Permittees for the waste stream.**

6 All specific, relevant **supplemental supporting** acceptable knowledge documentation assembled
7 and used in the acceptable knowledge process, whether it supports or contradicts any required
8 acceptable knowledge documentation, shall be identified and an explanation provided for its use
9 (e.g., identification of a toxicity characteristic). **Supplemental Supporting** documentation may be
10 used to further document the rationale for the hazardous **characterization** results. The collection
11 and use of **supplemental supporting** information shall be assessed by the Permittees during site
12 audits to ensure that hazardous waste **characterization** is supported, as necessary, by
13 **supplemental supporting** information. Similar to required information, if discrepancies exist
14 between **supplemental supporting** information and the required information, then sites shall
15 apply all hazardous waste **codes numbers** indicated by the **supplemental supporting** information
16 to the subject waste stream unless the sites choose to justify an alternative assignment and
17 document the justification in the auditable record.

18 B4-3 Acceptable Knowledge Training, Procedures and Other Requirements

19 The Permittees shall require consistency among sites in using acceptable knowledge
20 information to **characterize** TRU mixed waste by the use of the following ~~three phase process~~:
21 1) compiling the required and **supplemental supporting** acceptable knowledge documentation in
22 an auditable record, 2) ~~confirming and updating acceptable knowledge information using~~
23 ~~radiography and/or visual examination, headspace gas sampling and analysis, and~~
24 ~~homogeneous waste sampling and analysis, and 3) auditing acceptable knowledge records,~~
25 **and 3) WSPF approval and waste confirmation**. This section specifies qualification and training
26 requirements, describes each phase of the process, specifies the procedures that the
27 Permittees shall require all sites to develop to implement the requirements for using acceptable
28 knowledge, and specifies data quality requirements for acceptable knowledge.

29 B4-3a Qualifications and Training Requirements

30 Site personnel responsible for compiling acceptable knowledge, assessing acceptable
31 knowledge, and resolving discrepancies associated with acceptable knowledge shall be
32 qualified and trained in the following areas at a minimum:

- 33 ● WIPP WAP in Permit Attachment B and the ~~Treatment, Storage and Disposal~~
34 ~~Facility Waste Acceptance Criteria (TSDF-WAC)~~ specified in this permit
- 35 ● State and Federal RCRA regulations associated with solid and hazardous waste
36 **characterization**
- 37 ● Discrepancy resolution and reporting processes
- 38 ● Site-specific procedures associated with waste **characterization** using acceptable
39 knowledge

1 B4-3b Acceptable Knowledge Assembly; and Compilation, and Confirmation Procedures and
2 Required Administrative Controls

3 The Permittees shall obtain from sites acceptable knowledge procedures which require
4 consistent application of the acceptable knowledge process and requirements. Site-specific
5 acceptable knowledge procedures shall address the following:

- 6 ● Sites shall prepare and implement a written procedure outlining the specific
7 methodology used to assemble acceptable knowledge records, including the
8 origin of the documentation, how it will be used, and any limitations associated
9 with the information (e.g., identify the purpose and scope of a study that included
10 limited sampling and analysis data).
- 11 ● Sites shall develop and implement a written procedure to compile the required
12 acceptable knowledge record.
- 13 ● Sites shall develop and implement a written procedure that ensures
14 unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and
15 segregated from TRU mixed waste populations sent to WIPP.
- 16 ● Sites shall prepare and implement a written procedure to evaluate acceptable
17 knowledge and resolve discrepancies. If different sources of information indicate
18 different hazardous wastes are present, then sites shall include all sources of
19 information in its records and conservatively assign all potential hazardous waste
20 codes numbers unless the sites choose to justify an alternative assignment and
21 document the justification in the auditable record. The assignment of hazardous
22 waste codes numbers shall be tracked in the auditable record to all required
23 documentation.
- 24 ● Sites shall prepare and implement a written procedure to identify hazardous
25 wastes and assign the appropriate hazardous waste codes numbers to each
26 waste stream. The following are minimum baseline requirements/standards that
27 site-specific procedures shall include to ensure comparable and consistent
28 characterization of hazardous waste:
 - 29 - Compile all of the required information in an auditable record.
 - 30 - Review the compiled information and delineate TRU mixed waste
31 streams. Delineation of waste streams must comply with the following
32 definition: a waste stream is defined as waste material generated from a
33 single process or from an activity that is similar in material, physical form,
34 and hazardous constituents.
 - 35 - Review the compiled information to determine if the waste stream is
36 compliant with the TSDf-WAC.
 - 37 - Review the required information to determine if the waste is listed under
38 20.4.1.200 NMAC (incorporating 40 CFR §261), Subpart D. Assign all

1 listed hazardous waste ~~codes~~ **numbers** unless the sites choose to justify
2 an alternative assignment and document the justification in the auditable
3 record.

- 4 - Review the required information to determine if the waste **exhibits a**
5 **hazardous characteristic or** may contain hazardous constituents included
6 in the toxicity characteristics specified in 20.4.1.200 NMAC (incorporating
7 40 CFR §261), Subpart C. If a toxicity characteristic contaminant is
8 identified and is not included as a listed waste, assign the toxicity
9 characteristic ~~code~~ **number** unless data are available that demonstrate
10 that the concentration of the constituent in the waste is less than the
11 toxicity characteristic regulatory level. When data are not available, the
12 toxicity characteristic hazardous waste ~~code~~ **number** for the identified
13 hazardous constituent shall be applied to the mixed waste stream.

- 14 - **Review the compiled information to provide an estimate of material**
15 **parameter weights for each container to be stored or disposed of at**
16 **WIPP.**

17 For newly generated wastes, procedures shall be developed and implemented to
18 **characterize** hazardous waste using acceptable knowledge prior to packaging
19 the waste.

20 ~~● Sites shall develop and implement a written procedure for the confirmation of~~
21 ~~acceptable knowledge in accordance with Section B4-3(d).~~

22 ~~● Sites shall prepare and implement a written procedure that provides a cross~~
23 ~~reference to the applicable waste summary category group (i.e., S3000, S4000,~~
24 ~~and S5000) to verify all of the required confirmation data has been evaluated and~~
25 ~~the proper hazardous waste codes have been assigned.~~

26 ● Sites shall ensure that results of ~~other~~ audits of the TRU mixed waste
27 **characterization** programs at the site are available in the records.

28 ● **Sites shall identify all process controls (implemented to ensure that the waste**
29 **contains no prohibited items and to control hazardous waste content and/or**
30 **physical form) that may have been applied to retrievably stored waste and/or**
31 **may presently be applied to newly generated waste. Process controls are applied**
32 **at the time of waste generation/packaging to control waste content, whereas any**
33 **activities performed after waste generation/packaging to identify prohibited items,**
34 **hazardous waste content, or physical form are waste characterization activities,**
35 **not process controls. The AK record must contain specific process controls and**
36 **supporting documentation identifying when these process controls are used to**
37 **control waste content. See Permit Attachment B, Section B-2 for programmatic**
38 **requirements related to process controls.**

39 ~~Furthermore, the Permittees shall require the sites to implement procedure(s) which specify the~~
40 ~~administrative controls used by the site to ensure that prohibited items are documented and~~

1 ~~managed in accordance with site-specific certification plans. The following minimum elements~~
2 ~~shall be addressed in site-specific documentation associated with administrative controls:~~

3 ~~● Identify the organization(s) responsible for compliance with administrative~~
4 ~~controls.~~

5 ~~● Identify the oversight procedures and frequency of actions to verify compliance~~
6 ~~with administrative controls.~~

7 ~~● Develop on-the-job training specific to administrative control procedures.~~

8 ~~● Ensure that personnel may stop work if noncompliance with administrative~~
9 ~~controls is identified.~~

10 ~~● Develop a nonconformance process that complies with the requirements in~~
11 ~~Section B3 of the WAP to document and establish corrective actions.~~

12 ~~● As part of the corrective action process, assess the potential time frame of the~~
13 ~~noncompliance, the potentially affected waste population(s), and the~~
14 ~~reassessment and recertification of those wastes.~~

15 B4-3c Criteria for Assembling an Acceptable Knowledge Record and Delineating the Waste
16 Stream

17 Figure B4-1 provides an overview of the process for assembling acceptable knowledge
18 documentation into an auditable record. The first step is to assemble all of the required
19 acceptable knowledge information and any ~~supplemental~~ **supporting** information regarding the
20 materials and processes that generate a specific waste stream. The Permittees shall require the
21 sites to implement procedures which comply with the following criteria to establish acceptable
22 knowledge records:

- 23 ● Acceptable knowledge information shall be compiled in an auditable record,
24 including a road map for all applicable information.
- 25 ● The overview of the facility and TRU mixed waste management operations in the
26 context of the facility's mission shall be correlated to specific waste stream
27 information.
- 28 ● Correlations between waste streams, with regard to time of generation, waste
29 generating processes, and site-specific facilities shall be clearly described. For
30 newly generated wastes, the rate and quantity of waste to be generated shall be
31 defined.
- 32 ● A reference list shall be provided that identifies documents, databases, Quality
33 Assurance protocols, and other sources of information that support the
34 acceptable knowledge information.

1 Container inventories for TRU mixed waste currently in retrievable storage shall be delineated
2 into waste streams by correlating the container identification to all of the required acceptable
3 knowledge information and any ~~supplemental~~ **supporting** acceptable knowledge information.

4 B4-3d AK Sufficiency Determination Request Contents

5 Generator/storage sites may elect to submit an AK Sufficiency Determination Request
6 **(Determination Request)** for those waste streams that can be adequately characterized
7 through acceptable knowledge alone, without the need to perform post packaging chemical or
8 physical sampling and analysis on any containers in the waste stream. The Determination
9 Request shall include, at a minimum:

- 10 ● A complete AK Summary that addresses the following technical requirements:
 - 11 - Executive Summary;
 - 12 - Waste Stream Identification Summary, including a demonstration that the
13 waste stream has been properly delineated and meets the Permit
14 definition of waste stream (Permit Attachment B, Introduction),;
 - 15 - Mandatory Program Information (including, but not limited to, facility
16 location and description, mission, defense waste assessment, spent
17 nuclear fuel and high-level waste assessment, description of waste
18 generating processes, research/development [as necessary], facility
19 support operations [as applicable], types and quantities of TRU waste
20 generated, correlation of waste streams to buildings/processes, waste
21 identification and categorization, physical form identifiers);
 - 22 - Mandatory Waste Stream Information (including, but not limited to, Area
23 and Building of Generation, waste stream volume/period of generation
24 (including, for newly generated waste, the rate and quantity of waste to be
25 generated), waste generating activities, types of waste generated,
26 material input related to physical form and identification of percentage of
27 each waste material parameter in the waste stream, chemical content
28 information including hazardous constituents and hazardous waste
29 identification, prohibited item content (including documented evidence
30 that the waste meets the TSDf-WAC Permit Conditions II.C.3.a-h), waste
31 packaging, presence of filter vents, number of layers of confinement);
 - 32 - Types of supporting information gathered;
 - 33 - Container specific data (if available and relevant); and
 - 34 - A complete reference list including all mandatory and supporting
35 information
- 36 ● An AK roadmap (defined as a cross reference between mandatory programmatic
37 and mandatory waste stream information, with references supporting these
38 requirements)
- 39 ● A complete reference list including all mandatory and supporting documentation.
- 40 ● Relevant supporting information for the required programmatic and waste stream
41 data addressed in the AK Summary, examples of which are presented in Permit
42 Attachment B4, Section B4-2c.
- 43 ● Identification of any mandatory requirements supported only by upper tier
44 documents (i.e., there is insufficient supporting data).

- 1 ● Description or other means of demonstrating that the AK process described in
2 the Permit was followed (for example, AK personnel were appropriately trained;
3 discrepancies were documented, etc).
- 4 ● Information showing that the generator/storage site has developed a written
5 procedure for compiling the AK information and assigning hazardous waste
6 numbers as required in Permit Attachment B4-3b;
- 7 ● Information showing that the generator/storage site has assessed the AK
8 process (e.g. internal audits, Permit Attachment B4-3b).

9 The Permittees shall evaluate the Determination Request for completeness and technical
10 adequacy as specified in Permit Attachment B. If the Permittees provisionally approve the
11 Determination Request, they will forward it along with all information submitted with the
12 Determination Request to NMED for an evaluation of adequacy.

13 ~~B4-3d~~ Requirements for Confirmation of Re-evaluating Acceptable Knowledge Information

14 Acceptable knowledge includes information regarding the physical form of the waste, the base
15 materials composing the waste, and the process that generates the waste. Waste
16 characterization ~~sampling and analysis~~ (i.e., radiography or visual examination, headspace-gas
17 sampling and analysis, and homogeneous waste sampling and analysis) ~~will~~ **may** be used to
18 confirm ~~augment~~ acceptable knowledge information. ~~Figure B4-2 illustrates the process the~~
19 ~~Permittees shall require sites to use to confirm acceptable knowledge.~~

20 The Waste Stream Profile Form (**WSPF**) and Characterization Information Summary (including
21 the acceptable knowledge summary) will be reviewed for each waste stream prior to Permittee
22 approval of the WSPF. The Permittees review will **ensure** that the submitted AK information was
23 collected under procedures that **ensure** implementation of the WAP, provides data sufficient to
24 meet the DQOs in Section B-4a(1), and allow the Permittees to demonstrate compliance with
25 the waste analysis requirements of the Permit. A detailed discussion of the Permittees' waste
26 stream review and approval process is provided in **Section B -1d**.

27 ~~Acceptable knowledge characterization results shall be confirmed for both retrievably stored~~
28 ~~and newly generated waste. All retrievably stored waste shall be characterized using~~
29 ~~radiography or visual examination to confirm the Waste Matrix Code and waste stream and~~
30 ~~certify compliance with the WAP (Permit Attachment B). If a site must repackage its retrievably~~
31 ~~stored waste, either the visual examination technique prior to or during waste packaging or~~
32 ~~radiography (or VE in lieu of radiography) after waste packaging shall be used to confirm~~
33 ~~acceptable knowledge information.~~

34 ~~For newly generated wastes, sites that elect to confirm AK during packaging of newly generated~~
35 ~~waste shall have written procedures to document the confirmation of acceptable knowledge~~
36 ~~information with the visual examination technique prior to or during waste packaging. The~~
37 ~~following minimum requirements shall be addressed in site-specific procedures:~~

- 38 ● ~~scope (i.e., waste streams) and purpose;~~
- 39 ● ~~responsible organization(s);~~

- 1 —●— administrative process controls;
- 2 —●— material inputs to process;
- 3 —●— process controls and range of operation that affect final hazardous waste
4 characterization;
- 5 —●— rate and quantity of the hazardous waste generated;
- 6 —●— list of applicable operating procedures relevant to the hazardous waste
7 characterization;
- 8 —●— process knowledge verification sampling (i.e., headspace-gas sampling and/or
9 homogeneous waste annual sampling); and
- 10 —●— reporting and records management.

11 The Permittees shall require sites to establish procedures for reevaluating acceptable
12 knowledge if **the results of waste confirmation indicate that the waste to be shipped does not**
13 **match the approved waste stream, or if data obtained from radiography or visual examination**
14 **for waste streams without an AK Sufficiency Determination exhibit this discrepancy** results in the
15 assignment of a different Waste Matrix Code [e.g., Plastic/Rubber (S5310) versus Paper/Cloth
16 (S5330)]. Site procedures shall describe how the waste is reassigned, acceptable knowledge
17 reevaluated, and appropriate hazardous waste **codes numbers** assigned. If **the reevaluation**
18 **requires that the a waste must be assigned to a different Waste Matrix Code be changed for the**
19 **waste stream or the waste does not match the approved waste stream based on radiography or**
20 **visual examination**, the following minimum steps shall be taken to reevaluate acceptable
21 knowledge:

- 22 ● Review existing information based on the container identification number and
23 document all differences in hazardous waste **code number** assignments
- 24 ● If differences exist in the hazardous waste **codes numbers** that were assigned,
25 reassess and document all required acceptable knowledge information (Section
26 B4-3b) associated with the new designation
- 27 ● Reassess and document all sampling and analytical data associated with the
28 waste
- 29 ● Verify and document that the reassigned Waste Matrix Code was generated
30 within the specified time period, area and buildings, waste generating process,
31 and that the process material inputs are consistent with the waste material
32 parameters identified during radiography or visual examination
- 33 ● Record all changes to acceptable knowledge records
- 34 ● If discrepancies exist in the acceptable knowledge information for the **reassigned**
35 **revised** Waste Matrix Code, document the segregation of **this container the**

1 **affected portion of the waste stream**, and define the actions necessary to fully
2 **characterize the waste**

3 Potential toxicity characteristics for base materials that compose TRU mixed heterogeneous
4 debris (S5000) waste may be determined without destructive sampling and analysis via
5 acceptable knowledge. Sites will assign a Waste Matrix Code and waste stream to each
6 container of waste using acceptable knowledge. In lieu of ~~confirmatory~~ sampling and analytical
7 or other data to the contrary (including headspace gas and total/TCLP analysis of solids/soils),
8 sites shall assign the toxicity characteristic hazardous waste ~~codes~~ **numbers** based on the
9 presence of the constituent identified by acceptable knowledge, regardless of the quantity or
10 concentration. ~~Radiography or visual examination shall be used to confirm the Waste Matrix
11 Code and waste stream identified using acceptable knowledge. If the waste stream designation
12 is so detailed that the specific components cannot be differentiated by radiography (e.g., a
13 waste stream based on a specific type of plastic), this waste stream confirmation need not be
14 performed and this omission shall be explained in the auditable record. Procedures shall
15 describe how discrepancies in the Waste Matrix Code are recorded and additions to hazardous
16 waste ~~codes~~ **numbers** based on material composition are documented, as necessary (Section
17 B4-3b).~~

18 ~~With the exception of qualifying LANL sealed sources waste containers, headspace gas
19 sampling and analysis shall be conducted on all TRU mixed waste or randomly selected
20 containers from waste streams that meet the conditions for reduced headspace gas sampling
21 listed in Permit Attachment B, Section B-3a(1), to be sent to the WIPP facility. The LANL sealed
22 sources waste containers that meet specified conditions must be assigned VOC concentration
23 values in accordance with Section B-3a(1)(iii). Headspace gas data will be used to confirm the
24 presence or absence of volatile organic compounds (**VOCs**) identified using acceptable
25 knowledge.~~

26 The Permittees shall require sites to use acceptable knowledge to identify spent solvents
27 associated with each TRU mixed waste stream or waste stream lot. Headspace-gas data will
28 then be used to ~~confirm acceptable knowledge concerning the presence or absence of F-listed
29 solvents and concentration of applicable toxicity characteristic solvents.~~ **resolve the assignment
30 EPA F-listed hazardous waste numbers to debris waste streams when waste streams do not
31 have an AK Sufficiency Determination approved by the Permittees. In this case, sites** ~~Sites shall
32 confirm the assignment of F-listed hazardous waste ~~codes~~ **numbers** (20.4.1.200 NMAC,
33 incorporating 40 CFR §261.31) by evaluating the average concentrations of each VOC detected
34 in container headspace gas for each waste stream or waste stream lot using the upper 90
35 percent confidence limit (**UCL₉₀**). The UCL₉₀ for the mean concentration shall be compared to
36 the program required quantitation limit (**PRQL**) for the constituent. If the UCL₉₀ for the mean
37 concentration exceeds the PRQL, sites shall reevaluate their acceptable knowledge information
38 and determine the potential source of the constituent. Sites shall provide documentation to
39 support any determination that F-listed organic constituents are associated with packaging
40 materials, radiolysis, or other uses not consistent with solvent use. If the source of the detected
41 F-listed solvents can not be identified, the appropriate spent solvent hazardous waste ~~code~~
42 **number** will be conservatively applied to the waste stream. In the case of applicable toxicity
43 characteristic VOCs and non-toxic F003 constituents, generator/storage sites may assess
44 whether the head space gas concentration would render the waste non-hazardous for those
45 characteristics and change the initial acceptable knowledge determination accordingly.~~

1 Hazardous ~~EPA hazardous~~ waste ~~numbers~~ associated with S3000 and S4000 waste streams
2 will be ~~verified~~ ~~assigned~~ based on the results of the total/TCLP analysis of a representative
3 homogeneous waste sample ~~when waste streams do not have an AK Sufficiency Determination~~
4 ~~approved by the Permittees~~. ~~If discrepancies between the results obtained from homogeneous~~
5 ~~waste sampling and analysis and headspace gas sampling and analysis exist (i.e., a VOC is~~
6 ~~detected in the solidified waste but not in the headspace), the most conservative results will be~~
7 ~~used to verify acceptable knowledge and assign hazardous waste codes, as applicable. As with~~
8 ~~headspace gas, if the total/TCLP results indicate that the concentration of a characteristic waste~~
9 ~~or non-toxic constituent of an F003 waste is below regulatory levels, the hazardous waste code~~
10 ~~number assigned initially by acceptable knowledge may be changed as part of the confirmatory~~
11 ~~process. Otherwise, if an F-listed waste constituent is detected, the appropriate hazardous~~
12 ~~waste code number shall be applied.~~

13 If the ~~confirmatory process~~ ~~site~~ determines that the source of the F-listed constituent is a spent
14 solvent used in the process or is determined to be the result of mixing a listed waste with a solid
15 waste during waste packaging, or applicable toxicity characteristic or non-toxic F003 wastes are
16 present in excess of regulatory levels, then the site will either: 1) assign the applicable listed
17 hazardous waste ~~code~~ ~~number~~ to the entire waste stream, or 2) segregate the drums containing
18 detectable concentrations of the solvent into a separate waste stream and assign applicable
19 hazardous waste ~~codes~~ ~~numbers~~. Each site shall document, justify, and consistently delineate
20 waste streams and assign hazardous waste ~~codes~~ ~~numbers~~ based on site-specific permit
21 requirements and other state-enforced agreements.

22 To determine the mean concentration of solvent VOCs, all headspace-gas data ~~and or~~
23 homogeneous waste data for a waste stream or waste stream lot (i.e., the portion of the waste
24 stream that is ~~characterized~~ as a unit) will be used, including data qualified with a 'J' flag (i.e.,
25 less than the PRQL but greater than the method detection limit [MDL]) or qualified with a 'U' flag
26 (i.e., undetected). For data qualified with a 'U' flag, sites shall use one-half the MDL in
27 calculating the mean concentration. Because listed wastes are not defined based on
28 concentration, sites may not remove hazardous waste ~~codes~~ ~~numbers~~ assigned using
29 acceptable knowledge if hazardous constituents are not detected in the headspace gas or
30 solids/soil analysis.

31 TRU mixed headspace gases and homogeneous waste matrices may contain one or two
32 constituents (e.g., carbon tetrachloride and 1,1,1-trichloroethane) at concentrations that are
33 orders of magnitude higher than the other target analytes. In these cases, samples shall be
34 diluted to remain within the instrument calibration range for the elevated constituents. Sample
35 dilution results in elevated MDLs for the constituents with elevated concentrations. Only the
36 concentrations of detected constituents will be used to calculate the mean for the purpose of
37 assigning F-listed hazardous waste ~~codes~~ ~~numbers~~. Because the presence or absence of F-
38 listed solvents can not be ~~confirmed~~ ~~assigned~~ based on the artificially high MDLs that are
39 caused by sample dilution, data flagged as 'U' and showing an elevated MDL will not be used in
40 calculating the mean concentration.

1 **B4-3ef Acceptable Knowledge Data Quality Requirements**

2 The data quality objectives for sampling and analysis techniques are provided in Permit
3 Attachment B3. Analytical results will be used to ~~confirm~~ **augment** the **characterization** of wastes
4 based on acceptable knowledge. To ensure that the acceptable knowledge process is
5 consistently applied, the Permittees shall require sites to comply with the following data quality
6 requirements for acceptable knowledge documentation **in Permit Attachment B3.:**

- 7 ~~● Precision - Precision is the agreement among a set of replicate measurements~~
8 ~~without assumption of the knowledge of a true value. The qualitative~~
9 ~~determinations, such as compiling and assessing acceptable knowledge~~
10 ~~documentation, do not lend themselves to statistical evaluations of precision.~~
11 ~~Therefore, precision requirements are not established for acceptable knowledge.~~

- 12 ~~● Accuracy - Accuracy is the degree of agreement between an observed sample~~
13 ~~result and the true value. The percentage of waste containers which require~~
14 ~~reassignment to a new Waste Matrix Code and/or designation of different~~
15 ~~hazardous waste codes based on the reevaluation of acceptable knowledge or~~
16 ~~on obtaining sampling and analysis data will be reported as a measure of~~
17 ~~acceptable knowledge accuracy.~~

- 18 ~~● Completeness - Completeness is an assessment of the number of waste streams~~
19 ~~or number of samples collected to the number of samples determined to be~~
20 ~~useable through the data validation process. The acceptable knowledge record~~
21 ~~shall contain 100 percent of the information specified in Section B4-2. The~~
22 ~~useability of the acceptable knowledge information will be assessed for~~
23 ~~completeness during audits.~~

- 24 ~~● Comparability - Data are considered comparable when one set of data can be~~
25 ~~compared to another set of data. Comparability is ensured through sites meeting~~
26 ~~the training requirements and complying with the minimum standards outlined for~~
27 ~~procedures that are used to implement the acceptable knowledge process. All~~
28 ~~sites shall assign hazardous waste codes in accordance with Section B4.3b and~~
29 ~~provide this information regarding its waste to other sites who store or generate a~~
30 ~~similar waste stream.~~

- 31 ~~● Representativeness - Representativeness expresses the degree to which sample~~
32 ~~data accurately and precisely represent characteristics of a population.~~
33 ~~Representativeness is a qualitative parameter that will be satisfied by ensuring~~
34 ~~that the process of obtaining, evaluating, and documenting acceptable~~
35 ~~knowledge information is performed in accordance with the minimum standards~~
36 ~~established in Section B4-3b. Sites also shall assess and document the~~
37 ~~limitations of the acceptable knowledge information used to assign hazardous~~
38 ~~waste codes (e.g., purpose and scope of information, date of publication, type~~
39 ~~and extent to which waste parameters are addressed and limitations of~~
40 ~~information in identifying hazardous wastes).~~

1 Each site shall address quality control by tracking its performance with regard to the use of
2 acceptable knowledge by: 1) assessing the frequency of inconsistencies among information,
3 and 2) documenting the results of acceptable knowledge confirmation through **waste**
4 **discrepancies identified by site during waste characterization or the Permittees during waste**
5 **examination using** radiography, ~~or visual examination, headspace gas analyses, and~~
6 ~~homogeneous waste analyses~~ **or review of visual examination records**. In addition, the
7 acceptable knowledge process and waste stream documentation shall be evaluated through
8 internal assessments by **generator/storage site** quality assurance organizations ~~and~~
9 ~~assessments by auditors or observers external to the organization (i.e., DOE/Carlsbad Field~~
10 ~~Office (CBFO), NMED, EPA).~~

11 **B4-3f** Audits of Acceptable Knowledge

12 The Permittees will conduct an initial audit of each site prior to certifying the site for shipment of
13 TRU mixed waste to the WIPP facility. This initial audit will establish an approved baseline that
14 will be reassessed annually by the Permittees. These audits will verify compliance with the
15 requirements specified in the WAP (Permit Attachment B). The audits will be used to verify
16 compliance with the compilation, application, and interpretation requirements of acceptable
17 knowledge information specified in this Permit at all sites, and to evaluate the completeness and
18 defensibility of site-specific acceptable knowledge documentation related to hazardous waste
19 **characterization**. Permit Attachment B6 gives a description of the overall audit program and a
20 required checklist. Figure B4-32 includes the primary steps associated with the audit process of
21 acceptable knowledge.

22 Site-specific audit plans will be prepared by the Permittees and provided to NMED, and will
23 identify the scope of the audit, requirements to be assessed, participating personnel, activities
24 to be audited, organizations to be notified, applicable documents, and schedule. Audits will be
25 performed in accordance with written procedures and site-specific checklists that will be
26 developed by the Permittees prior to the audit and provided to NMED. The site-specific audit
27 checklists will include items associated with the compilation and evaluation of the required
28 acceptable knowledge information as specified in the checklist required by Permit Attachment
29 B6.

30 Audit checklists shall include Table B6-3 in Permit Attachment B6, and will include but not be
31 limited to the following elements for review during the audit:

- 32 ● Documentation of the process used to compile, evaluate, and record acceptable
33 knowledge is available and implemented;
- 34 ● Personnel qualifications and training are documented;
- 35 ● All of the required acceptable knowledge documentation specified in Section B4-
36 2 has been compiled in an auditable record;
- 37
- 38 ● All of the required procedures specified in B4-3 have been developed and
39 implemented, including but not limited to:

- 1 - A procedure exists for assigning hazardous waste ~~codes~~ **numbers** to
2 waste streams in accordance with Section B4-3;

- 3 - A procedure exists for resolving discrepancies in acceptable knowledge
4 documentation in accordance with Section B4-3;

- 5 - ~~A procedure exists for confirming acceptable knowledge information
6 through: a) radiography or visual examination, b) headspace gas
7 sampling and analysis, and c) homogeneous waste sampling and
8 analysis in accordance with Section B4-3; and~~

- 9 ● Results of other audits of the TRU mixed waste **characterization** programs at the
10 site are available in site records.

11 Members of the audit team will be knowledgeable regarding the required acceptable knowledge
12 information, RCRA regulations and EPA guidance regarding the use of acceptable knowledge
13 for waste **characterization**, RCRA hazardous waste **characterization**, and the WAP requirements
14 (Permit Attachment B). Audit team members will be independent of all TRU mixed waste
15 management operations at the site being audited.

16 Auditors will evaluate acceptable knowledge documentation for at least one waste stream from
17 the Summary Category Group(s) being audited, and will audit acceptable knowledge traceability
18 for at least one container from the audited Summary Category Group(s). For these waste
19 streams, auditors will review all procedures and associated processes developed by the site for
20 documenting the process of compiling acceptable knowledge documentation; correlating
21 information to specific waste inventories; assigning hazardous waste ~~codes~~ **numbers**; and
22 identifying, resolving, and documenting discrepancies in acceptable knowledge records. The
23 adequacy of acceptable knowledge procedures and processes will be assessed and any
24 deficiencies in procedures documented in the audit report.

25 Auditors will review the acceptable knowledge documentation for selected waste streams for
26 logic, completeness, and defensibility. The criteria that will be used by auditors to evaluate the
27 logic and defensibility of the acceptable knowledge documentation include completeness and
28 traceability of the information, consistency of application of information, clarity of presentation,
29 degree of compliance with this Permit Attachment with regard to acceptable knowledge
30 confirmation data, nonconformance procedures, and oversight procedures. Auditors will
31 evaluate compliance with written site procedures for developing the acceptable knowledge
32 record. A completeness review will evaluate the availability of all required TRU mixed waste
33 management program information and TRU mixed waste stream information (Section B4-2).
34 Records will be reviewed for correlation to specific waste streams and the basis for
35 **characterizing** hazardous waste. Auditors will verify that sites include all required information
36 and conservatively include all potential hazardous waste ~~codes~~ **numbers** indicated by the
37 acceptable knowledge records. All deficiencies in the acceptable knowledge documentation will
38 be included in the audit report.

39 Auditors will verify and document that sites use administrative controls and follow written
40 procedures to **characterize** hazardous waste for newly-generated and retrievably stored wastes.
41 ~~Auditors will review procedures used by the sites to confirm acceptable knowledge information~~

1 using radiography or visual examination, headspace gas sampling and analysis, and
2 homogeneous waste sampling and analysis. Procedures to document changes in acceptable
3 knowledge documentation and changes to hazardous waste code number assignments to
4 specific waste streams also will be evaluated for compliance with the WAP (Permit Attachment
5 B).

6 After the audit is complete, the Permittees will provide the site with preliminary results at a
7 close-out meeting. The Permittees will prepare a final audit report that includes all observations
8 and findings identified during the audit. Sites shall respond to all audit findings and identify
9 corrective actions. Audit results will be included in the final audit report (Permit Attachment B6).
10 If acceptable knowledge procedures do not exist, the required information is not available, or
11 corrective actions (i.e., CARs) are identified associated with acceptable knowledge compilation,
12 acceptable knowledge confirmation, and/or hazardous waste characterization, the Permittees
13 will not manage, store, or dispose TRU mixed waste for the subject waste summary category.
14 Management, storage, or disposal of the subject waste summary category at WIPP will not
15 resume until the Permittees find that all corrective actions have been implemented and the site
16 complies with all applicable requirements of the WAP.

17 The National TRU Program disseminates information regarding TRU mixed waste
18 characterization requirements and program status through the WIPP Home Page at
19 <<http://www.wipp.ws>>. The Permittees will use this web page to disseminate information
20 regarding TRU mixed waste streams, RCRA compliance, and operational and programmatic
21 issues, methods development, and waste characterization information, including the application
22 of acceptable knowledge. The Permittees are provided the required waste characterization
23 information prior to management, storage, or disposal of that waste at WIPP and also will
24 conduct audits at least annually. The Permittees will maintain an operating record for review
25 during regulatory agency audits. NMED may also review any information relevant to the scope
26 of the audit during site audits. The Permittees will notify NMED regarding any site's failure to
27 implement corrective actions associated with hazardous waste characterization as specified in
28 Modules I and II and Permit Attachment B3.

29 B4-4 Additional Final Confirmation of Acceptable Knowledge at the WIPP Facility

30 ~~The Permittees shall require confirmation of acceptable knowledge characterization~~
31 ~~designations at the site, as stated in Section B4-3(b). In addition and prior to notifying a site that~~
32 ~~a waste stream can be managed, stored, or disposed at the WIPP facility, the Permittees will~~
33 ~~review the Waste Stream Profile Forms, the WIPP Waste Information System (WWIS), and~~
34 ~~associated Characterization Information Summary to ensure that radiography or visual~~
35 ~~examination, headspace gas sampling and analysis data, and homogeneous waste sampling~~
36 ~~and analysis data confirm hazardous waste characterization made using acceptable knowledge.~~
37 ~~The Permittees shall require all sites to provide all of the required data associated with waste~~
38 ~~stream characterization, including summary acceptable knowledge information, radiography or~~
39 ~~visual examination, headspace gas sampling and analysis, and homogeneous waste sampling~~
40 ~~and analysis results. In addition, sites will designate the assigned hazardous waste codes for~~
41 ~~the waste stream on the waste profile form. The WWIS and associated Characterization~~
42 ~~Information Summary will be evaluated as illustrated in Figure B4-2 and compared to the~~
43 ~~hazardous waste codes specified on the waste stream profile form. The Permittees will review~~
44 ~~information provided by the sites to ensure that additions to hazardous waste codes are~~

1 identified and justified based on data and that hazardous waste codes are included in the Part A
2 of the WIPP permit application. As part of the reconciliation of data quality objectives (DQOs)
3 (Permit Attachment B3, Section B3-11), sites are required to track and report changes to
4 hazardous waste characterizations. If data consistently indicates that discrepancies with
5 acceptable knowledge information were identified at the site level (and were subsequently
6 reconciled), the Permittees will require sites to reassess the materials and processes that
7 generate the waste, and resubmit waste stream profile information and implement their
8 corrective action system. If the Permittees' review of a waste stream profile form and associated
9 waste characterization data reveal nonconformance with acceptable knowledge requirements
10 as described in Permit Attachment B3 (i.e. project level nonconformance), the Permittees shall
11 not manage, store, or dispose of the waste stream until corrective action is taken as specified in
12 Permit Attachment B3. Repeated nonconformances by a site in implementing and documenting
13 WAP requirements (Permit Attachment B) will result in the termination of management, storage,
14 or disposal of the site's waste, waste stream(s), or summary category group(s), as applicable.
15 Management, storage, or disposal of the subject waste summary category at WIPP will not
16 resume until the Permittees find that all corrective actions have been implemented and the site
17 complies with all applicable requirements of the WAP.

18 Any drum with unresolved discrepancies associated with hazardous waste characterization will
19 not be managed, stored, or disposed at the WIPP facility until the discrepancies are resolved.
20 The Permittees shall require the sites to reassess the materials and processes that generate
21 the waste, and headspace-gas sampling and analysis, radiography or visual examination, and
22 homogeneous waste sampling and analysis results. All shipments of the subject waste stream
23 will cease until the corrective action(s), as necessary, have been implemented and the
24 discrepancy resolved. The Permittees will notify NMED when the certification status of a waste
25 stream at a site is revoked. Waste characterization and certification authority will not be
26 reinstated until the site demonstrates all corrective actions have been implemented and the
27 program is reassessed by the Permittees.

1

FIGURES

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Figure B4-1
Compilation of Acceptable Knowledge Documentation

Figure B4-2
~~Confirmation of Acceptable Knowledge~~

Figure B4-32
Acceptable Knowledge Auditing