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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 14, 1996

Mr. George Dials, Manager
Carlsbad Area Office
Department of Energy
P. O. Box 3090
Carlsbad, New Mexico 88221

Mr. Joe Epstein, General Manager
Westinghouse Electric Corporation
P.O. Box 2078
Carlsbad, New Mexico 88220

Dear Messrs. Dials and Epstein:

RE: Notice of Deficiency (NOD) - Technical Adequacy Review of WIPP RCRA Part B Permit Application Revision 5.2, January 17, 1996. EPA ID No. NM4890139088

The Hazardous and Radioactive Materials Bureau (**HRMB**) of the New Mexico Environment Department (**NMED**) has reviewed, for technical adequacy, the January 17, 1996 joint disposal permit application from the U.S. Department of Energy (**DOE**) and Westinghouse for the Waste Isolation Pilot Plant (**WIPP**). This application is required under the Resource Conservation and Recovery Act (**RCRA**), as incorporated within the New Mexico Hazardous Waste Management Regulations, 20 NMAC 4.1. The current application describes disposal of transuranic mixed waste in underground hazardous waste management units (**HWMUs**) and storage of transuranic mixed waste at surface container storage HWMUs.

After reviewing the permit application, HRMB has found the application to be technically deficient. The enclosed attachment lists the requested information necessary for HRMB to begin preparation of a draft permit. The attachment contains numerous requests for specific information from most chapters of the application. Listed below are the general areas of significant deficiency which must be addressed:

1. ***Waste characterization:***
   - clarify contact-handled waste characterization procedures
   - provide extensive, detailed information on remote-handled waste characterization procedures

2. ***Risk assessment:***
   - re-evaluate the point of compliance based on maximally exposed individuals or populations at risk
   - assess the impacts of a major RCRA constituent release at the point of compliance
   - provide more specific information describing ground control and geomechanical monitoring programs

3. ***Monitoring plans:***
   - provide plans for monitoring potential air releases of RCRA constituents during disposal operations
   - provide plans for monitoring potential groundwater releases of RCRA constituents during post-closure
   - ensure both air and groundwater monitoring programs include provisions to establish background levels of RCRA constituents to be disposed at WIPP;

4. ***Closure plans:***
   - clarify some aspects of the closure plan, such as contingency closure
   - submit final shaft seal designs

Submit the information listed in the attachment to HRMB within thirty (30) days of receipt of this NOD. Failure to submit the information within this designated time may result in the issuance of a compliance order with associated fines. We understand some information listed in this NOD may require more than 30 days to develop. For this reason, HRMB will consider a petition to extend the deadline for portions of the required information if you provide a written justification and expected submittal date for each portion.

Also included as an enclosure are comments on the "Transuranic Waste Characterization Sampling and Analysis Methods Manual". Although this document was not submitted with the permit application, HRMB has identified concerns within the Methods Manual which must be addressed before it becomes acceptable as a reference or appendix to the permit application. HRMB believes this revised Methods Manual should be adopted by reference into the application.

Mr. Michael McFadden, in a letter from DOE on January 25, 1996, requested an opportunity to meet with HRMB to discuss responses to earlier requests for information on the application. HRMB response of February 8, 1996 suggested that such a meeting would be better suited after the NOD was issued. HRMB would welcome a request from DOE and Westinghouse for further meetings to clarify the NOD on the application.

If you have any questions about this NOD, please contact Ms. Barbara Hoditschek, Mr. Steve Zappe, or me at (505) 827-1561.

Sincerely,

Benito J. Garcia
Chief, Hazardous & Radioactive Materials Bureau

Enclosures

cc: Ed Kelley, NMED
Barbara Hoditschek, HRMB
Steve Zappe, HRMB
Susan McMichael, NMED OGC
Karen Day, WID (including documents on floppy)
Craig Snider, DOE
David Neleigh, EPA Region 6
Matt Hale, EPA OSW
Victor Sgobba, GAO
Connie Walker, A.T. Kearney
Lindsay Lovejoy, NMAG
Don Hancock, SRIC
WIPP File - Red '95

WIPP PART B PERMIT APPLICATION REVIEW

ALL CHAPTERS

OVERALL COMMENTS

1. The permit application has been reviewed for consistency in data presentation, unit conversion, typographical errors, etc. In some instances, specific NOD comments highlighting some of the problems identified are included. However, the DOE must carefully review the entire permit application to ensure that: all values cited are true, accurate, and consistent; typographical errors are corrected; all necessary items are included within the glossary; and metric/english conversions are correct. Revise the permit application, as necessary to address these errors.

2. The permit application has been comprehensively reviewed for technical consistency and adequacy. In some instances, deficiencies have been noted that, when appropriately addressed, would impact the permit application within chapters other than the Chapter where the NOD comment is cited in association with. The DOE must ensure that all appropriate portions of the permit application are modified to address an issue, as appropriate, not just the chapter that the original issue was identified with. Presentation of these issues within each section would be redundant and would result in a significant increase in NOD comments. Instead, the DOE must examine each NOD comment, determine whether the appropriate response impacts other Chapters of the permit application, and modify the appropriate Chapters of the permit application to correctly and comprehensively address the specific concern.

3. The next version of the permit application must include updated tables of contents for each Chapter, as well as an updated glossary, and all necessary modifications to text format to ensure consistency of subheadings within and between Chapters. In some Chapters, subheadings to multiple "levels" are included with section number identifiers, while other Chapters only include subheadings to a given "level", with remaining subheadings only underlined and not numbered. The permit application must be revised to ensure that, editorially, all errors are addressed, table of contents are included, and consistent subheadings are used.

4. Revise the glossary to ensure all applicable definitions are consistent with RCRA, as found in 20 NMAC 4.1, Subpart I, 40 CFR §260.10.

5. Revise the permit application throughout to reflect the contents of recently updated documents, particularly the Transuranic Waste Baseline Inventory Report, Revision 2 (DOE/CAO-95-1121) and the Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 5 (DOE/WIPP-069).

6. The permit application makes many generalized allusions to "written procedures" which are not provided for review. Revise the permit application to provide references to specific documents and the appropriate sections within those documents where the written procedures are located, unless a specific comment directs the inclusion of a particular written procedure into the permit application.

WIPP PART B PERMIT APPLICATION REVIEW
RCRA PART A APPLICATION

CHAPTER A

SPECIFIC COMMENTS

1. **Chapter A, Pages A-4, A-5 (Lines 15-17), and A-5a (Lines 4-7):** Page A-5a of the Part A states "During the ten year period of the permit, up to 52,110 m^3 of CH waste and 1954 m^3 of RH waste could be emplaced in Panels 1 to 3." However, the Part A on pages A-4 and A-5 states a total of 175,600 cubic meters of waste will be emplaced. Revise the permit application, including the Part A, to correctly and consistently reference the amount of CH waste that is expected to be emplaced during the ten year permit period.

   In addition, page A-5 of the Part A states "The geologic repository has been divided into ten discrete hazardous waste management units (HWMUs) which are being permitted under 40 CFR Part 264, Subpart X." The number of geologic repository HWMUs (10) proposed for a permit as noted on the page A-5 directly contradicts the number of panels (3) proposed for a permit as noted on the page A-5a and the number of X04 units (1) on page A-4. Revise the permit application, including the Part A, to correctly and consistently reference the number of HWMUs proposed for a permit.

2. **Chapter A, Page A-7:** Some EPA Hazardous Waste Codes have been added (e.g., D021, D027, D030, D032, D034, D036 through D039, D043) to the Part A, and some EPA Hazardous Waste Codes (e.g., D023, D024, D025) have been deleted from the Part A. However, Table C-2 on pages C-96 and C-97 still lists D023, D024, and D025 for Debris Waste - S5000/Heterogeneous/ SR-W026 and SR-W027/Heterogeneous Debris. In addition, 2,4-dinitrophenol (P048) is still listed in Tables C-3, C-8, C-10 and C8-7 on pages C-111, C-125, C-128 and C8-26, respectively, but has not been added to the Part A. Revise the permit application, including the Part A, applicable tables, and appendices, to correctly and consistently list the EPA Hazardous Waste Codes.

3. **Chapter A, Page A-7:** No process codes for container storage (S01) appear on this page. Revise the permit application, including the Part A, to identify any process codes associated with the proposed container storage areas identified on pages A-4, A-5, and A-5a.

4. **Chapter A, Figure A2-3:** The legend of Figure A2-3 denotes Water Quality Wells as a white square with a black-lined perimeter which corresponds to "H", "P", "WIPP" and "ERDA" and various numbers. However, Figure A2-3 denotes the acronym "WQSP" and various numbers with black filled-in circles. Revise Figure A2-3 and its legend to correctly and consistently reflect the names, numbers, and symbols.

5. **Chapter A, Figure A3-3:** The overpack and repair room, and the overpack enclosure have been deleted from Figure A3-3. However, sufficient justification has not been provided to demonstrate that these areas will not be needed/used. Revise the permit application, where appropriate, to provide sufficient justification to demonstrate that the overpack and repair room, and overpack enclosure will not be needed/used. Alternatively, if sufficient justification cannot be provided, revise the permit application, where applicable, to include the overpack and repair room, and the overpack enclosure.

WIPP PART B PERMIT APPLICATION REVIEW
RCRA PART A APPLICATION

APPENDIX A4

GENERAL COMMENTS

1. Photographs of the Waste Handling Building inside and outside both the CH and RH areas {Figures A4-3 through A4-10) have been provided. A single photograph of the Facility Cask Loading Room and Waste Hoist Conveyance areas (Figure A4-11) has also been provided. Although Figure A4-11 clearly shows the Facility Cask Loading Room, it does not clearly show the Waste Hoist Conveyance area. Revise the permit application to include a photograph that clearly shows the Waste Hoist Conveyance area.

In addition, a photograph has not been provided for the Overpack and Repair Room. See the NOD associated with Chapter A Specific Comment No. 5. If sufficient justification has not been provided, a photograph of the Overpack and Repair Room must be included in Appendix A4. Alternatively, if sufficient justification is provided, a photograph is not required.

WIPP PART B PERMIT APPLICATION REVIEW
FACILITY DESCRIPTION

CHAPTER B

SPECIFIC COMMENTS

1. **Chapter B, Introduction, Page B-6, Line 24.** Public Law 102-579 (the WIPP Land Withdrawal Act, or LWA) requires DOE to acquire two specific Federal Oil and Gas Leases for the property, unless EPA determines they are not necessary. The current revision to the application states that DOE will only acquire the Oil and Gas Leases if specifically directed by EPA. Revise the permit application to discuss why DOE has revised the language that was originally taken directly from Public Law 102-579. Alternately, revise the application to use language directly from the LWA.

2. **Chapter B, Section B-1b(1), Surface Hazardous Waste Management Units, Page B-12, Lines 30-33.** The size of the CH and RH waste management areas are clearly identified in Section B-1b(1). For consistency, it is recommended that the size of the parking area storage area should also be identified as 272,500 ft^2 in the text of Section B-1b(1) and reference to new Figure B-3a be provided. Revise the permit application accordingly.

3. **Chapter B, Section B-1b(1), Surface Hazardous Waste Management Units, Page B-12, Line 35.** The text references several sections of Chapter D for further information. None of the Section D citations exist, and it is not clear what the correct section cross-references should be. Revise Section B-1b(1) to provide proper cross-references to other sections of the application .

4. **Chapter B, Section B-1b(1)(a), CH TRU Mixed Waste Handling, Page B-13, Lines 17-21.** Sections D-1a(1)(a) and D-10a(3)(b) describe other alternatives to managing containers with surface contamination. Other procedures include shipping the waste to other DOE sites, shipping the waste to other permitted facilities, or disposing the waste in the WIPP repository in the TRUPACT-II shipping container. Revise Section B-1b(1)(a) to provide information consistent with other parts of the permit application.

5. **Chapter B, Section B-1b(1)(a), CH TRU Mixed Waste Handling, Page B-13, Lines 33-35.** Section B-1b(1)(a) states that wastes with documentation inconsistencies "may" be shipped back to the generator sites. This statement is vague and requires clarification. If other procedures may be followed, revise Section B-1b(1)(a) to either summarize these procedures or provide a clear cross-reference to another section of the application where details are provided. Revise Section B-1b(1)(a) to clearly summarize procedures for managing containers with documentation problems.

6. **Chapter B, Section B-1b(1)(a), CH TRU Mixed Waste Handling, Page B-13, Lines 36-37.** Information on facility pallets provided in Section B-1b(1)(a) is not consistent with the text of Section D-10a(2)(b)(ii) (Page D-47, lines 24-26). Revise Section B-1b(1)(a) to include pallet management of 85-gallon containers arranged as 4-packs.

7. **Chapter B, Section B-1b(1)(b), RH TRU Mixed Waste Handling, Pages B-14 to B-15.** The configuration of the RH handling area is not adequately described in Section B of the

application. Text should be added to Section B-1b(1)(b) explaining that the hot cell complex is a multi-story unit. Revise the permit application to describe what portions of the hot cell complex are found at each level and to provide a cross-reference to the more detailed information and figures in Chapter D.

8. **Chapter B, Section B-1b(1)(c), Container Storage Volumes, Page B-15, Lines 30-36.** Section B-1b(1)(c) discusses storage capacities of the surface waste management units for which a permit is being sought. The text on page B-15, lines 30-36, is taken directly from Section D-1a(2)(b) and discusses off-normal storage of waste containers at the west side of the CH bay. Including this paragraph as the opening of Section B-1b(1)(c) suggests that waste storage in the CH bay will only occur in response to off-normal events. Clearly this is not the case. Move this paragraph to the end of Section B-1b(1)(c). Revise the permit application to define "off-normal" in the glossary, and ensure the definition agrees with the conditions required for an emergency permit issued by NMED under 20 NMAC 4.1, Subpart IX, §270.61. Also, revise the permit application to clearly indicate that any storage of hazardous waste in the WHB in excess of permit limits will occur only under an emergency permit issued by NMED.

9.* **Chapter B, Section B-1b(1)(c), Container Storage Volumes, Page B-16, Lines 1-11.** The language describing the "maximum volume planned for storage in the WHB is seven pallets" is confusing, since line 8 describes additional volumes occupying the staging positions at the TRUDOCKs. Revise the text of Section B-1b(1)(c) and appropriate figures in Chapter B to clarify the volumes of CH waste to be permitted for storage and to identify their location in the WHB. Ensure consistency with the description found in the Part A.

10. **Chapter B, Section B-1b(1)(c), Container Storage Volumes, Page B-16, Lines 16-18.** None of the figures provided with Chapter B identify the location of a Transfer Cell, where storage of RH containers will occur. It is also not clear where in the transfer cell waste container storage will occur. Similarly the storage location within the Hot Cell should be identified. Revise the text of Section B-1b(1)(c) and appropriate figures in Chapter B to clearly identify the location of these two RH storage areas.

11.* **Chapter B, Section B-1b(3)(a), CH Waste Containers, Page B-19, Line 4.** The permit application contains a typographical error on Line 4. The conversion of 64 ft^3 to cubic meters should be 1.81 m^3 rather than 19.5 m^3. Revise the permit application to correct the conversion.

12. **Chapter B, Section B-1b(3)(a), CH Waste Containers, Page B-19, Lines 5-9.** Section B-1b(3)(a) suggests that 85-gallon drums may be used directly for waste storage. The subheader in Section D-1a(1) clearly indicates that 85-gallon drums are used only to overpack 55-gallon drums. Since 85-gallon overpacks will not be shipped in TRUPACT-IIs, revise Section B-1b(3)(a) to be consistent with the information in Section D-1a(1).

13. **Chapter B, Section B-1c, The WIPP Site, Page B-20, Lines 10-24.** Section B-1c and Section G-1 are inconsistent in their description of areas of the WIPP facility that support mixed waste management and emergency response at RCRA permitted units. Section G-1 (page G-2, line 30) mentions unspecified warehouses as support areas for emergency response in the RCRA permitted areas. It is unclear what warehouses are being referred to, where they are located, and what emergency response equipment or administrative support areas they

contain. Revise Section B-1c and Section G-1 so that they consistently describe key support areas at the WIPP facility.

14. **Chapter B, Section B-1c, The WIPP Site, Page B-20, Lines 27-29.** The text on page B-20, lines 27-29, identifies the location of the Analytical Laboratory with respect to analysis of air samples for volatile organic compounds (VOCs). Section D-10d(1) (page D-97), however, states that collection of air samples for VOCs will not be performed during the disposal phase. Revise Section B-1c or Section D-10d(i), as appropriate, to address this inconsistency. Additionally, revise Section B-1c to clarify whether the Analytical Laboratory is the facility that will be used to characterize samples of unknown wastes during an emergency incident and to confirm that decontamination of equipment or structures has been achieved in response to an emergency incident (as described in Section G-4 of the application).

15. **Chapter B, Section B-2a, General Requirements, Page B-22, Lines 34-42, and Page B-23, Lines 1-14.** 20 NMAC 4.1, Subpart IX, §270.14(b)(19) requires information on sewers (storm, process, and sanitary) to be included on a topographic map of the facility. None of the information in Section B-2a discusses the location of sewers at the facility. Revise the permit application to address this topographic map requirement.

16. **Chapter B, Section B-2b, Additional Requirements for Land Disposal Facilities, Page B-23, Lines 16-23.** The proposed location of the point of compliance is an issue warranting further consideration. NOD comments on Chapter D regarding this issue must be addressed. Revise the text of Section B-2b including all supporting figures, as appropriate, to ensure consistency with Chapter D.

17. **Chapter B, Section B-2b, Additional Requirements for Land Disposal Facilities, Page B-23, Line 23.** A cross-referencing error appears on page B-23, line 23. Reference to section D-9b(4) should be revised to refer more generally to the overall performance standards discussed in Section D-9b. Revise the permit application accordingly.

18. **Chapter B, Section B-2b, Additional Requirements for Land Disposal Facilities, Page B-23, Line 25.** Revise Section B-2b to clarify the statement that wastes do not contain free liquids, as section D-1a describes containers as containing free liquids. Revise Section B-2b to briefly describe management of free liquids in wastes accepted at the WIPP facility to ensure that Chapter B is consistent with other chapters of the application.

    Also, here and elsewhere throughout the application, the Waste Acceptance Criteria (WAC) prohibition of liquid waste at WIPP is loosely (and incorrectly) interpreted to mean a prohibition of free liquids within a waste container. Review the WAC physical properties criteria and requirements concerning liquids, and revise all applicable portions of the permit application to ensure an accurate description of the requirements pertaining to residual liquids contained within the waste.

19. **Chapter B, Section B-4, Traffic Information, Page B-26, Line 25.** Section B-4 states that waste arriving by rail will "primarily" be RH casks. Procedures in Section D-10(a)(3) only briefly discuss unloading of RH casks from railcars in the RH Bay. If CH wastes as well as RH wastes will be shipped to the WIPP facility, Section B-4, Section F-4a, and Section D-10(a)(3) must all be revised to specifically describe how waste containers will be transferred from the railcars into the CH Bay. Alternatively, modify the language on page B-26 to

indicate that only RH wastes will be shipped by rail in RH casks or other casks approved by NRC or DOT.

20. **Chapter B, Section B-4, Traffic Information, pages B-26 through B-28.** 20 NMAC 4.1, Subpart IX, §270.14(b)(10) requires information on traffic patterns and traffic control. Revise Section B-4 to address rail transport speeds, number of transport cars, frequency of shipments, time of shipment idle at siding, typical and maximum time from rail car arrival to unloading, and a brief summary of procedures to move wastes into the WHB.

21. **Chapter B, Section B-4, Traffic Information, Page B-27, Lines 7-16.** Additional traffic pattern information in the vicinity of the WHB is necessary to comply with the requirements of 20 NMAC 4.1, Subpart IX, §270.14(b)(10). Neither the text of Section B-4 nor Figure B-19 clearly indicate that outgoing waste transport trucks use the same travel routes as incoming waste transport trucks. The text of Section B-4 should be revised to clearly describe this traffic flow and control.

22. **Chapter B, Section B-4, Traffic Patterns, Page B-28, Lines 17-29.** Additional details of procedures to ensure safe passage of vehicles and pedestrians in the underground requires clarification, in order to meet the requirements of 20 NMAC 4.1, Subpart IX, §270.14(b)(10). Revise Section B-4 to clarify what routes non-waste and non-construction vehicles will use in the underground. Revise Section B-4 to clarify what procedures are in place to protect pedestrians. Figure B-8 suggests there are physical barriers in the two access drifts that apparently will not be used for vehicle traffic; revise Section B-4 to clarify the use of these other two access drifts with respect to traffic patterns. Revise Section B-4 and provide a figure that clearly shows proposed traffic patterns in the underground when Panels 9 and 10 are being filled.

23.* **Chapter B, Figure B-3, Figure B-3a, and Figure B-4, Pages B-37 through B-39.** It is not clear why the boundaries of the radiologically controlled area do not correspond to the boundaries of the units identified for the management of mixed TRU wastes. Explain the rationale behind including only a portion of the parking area CH waste storage unit in the radiologically controlled area, and revise Chapter B figures as necessary.

24.* **Chapter B, Figure B-4a, Page B-40.** The location of the CH waste storage areas depicted on Figure B-4a does not accurately reflect the description of the storage areas in Section B-1b(1)(c) (page B-16, lines 3-11). Section B-1b(1)(c) states that there are two CH storage areas in the CH bay including: (1) the eastern corner of the bay where up to seven pallets of waste may be stored; and (2) the two TRUDOCKs where an equivalent of another two pallets of waste may be stored. Figure B-4a also depicts an additional two pallets of waste stored adjacent to the TRUDOCKs. Waste storage on pallets in these two areas is not described anywhere in the text of the application. Revise Figure B-4a to remove the pallets of waste shown adjacent to the TRUDOCKs. Revise Figure B-4a to shade the TRUDOCKs storage area and label this new shaded area as a CH waste storage location (similar to that provided for the eastern storage location shown on the same figure).

25. **Chapter B, Figure B-15, 1995 Average Yearly Cattle Density Within 50-Mile Radius of the WIPP Facility, Page B-53.** It is not clear why the number of cattle allowed within 50 miles of the WIPP facility is restricted to 62,852 head. Clarify the source of this restriction, and revise Figure B-15 or the text of the application as appropriate.

*** - New NOD Comment**

WIPP PART B PERMIT APPLICATION REVIEW
WASTE ANALYSIS PLAN

CHAPTER C

GENERAL COMMENTS

1. The permit application uses the terms "physical form","physical waste form", and "waste stream description" throughout Chapter C and its appendices without clearly defining them. This leads to confusion when confronted with statements such as:

   - "...Summary Category Groups that are related to the final physical form of the wastes." (C-3, lines 20-21)
   - "...sites assign a Waste Matrix Code to the waste stream based on the physical form of the waste." (C-11, lines 34-35)
   - "Radiography will be used to examine containerized waste to ascertain its physical form... If the physical form does not match the waste stream description, the waste will be designated as another waste stream..." (C-23, lines 11-17)
   - "Verification of physical form is accomplished according to written procedures..." (C-26, lines 16-17)
   - "All retrievably stored waste containers will be examined using radiography to confirm the physical waste form (Waste Matrix Code)..." (C-27, lines 26-27)
   - "Radiography (is used) to verify the TRU waste streams by Waste Matrix Code for the purpose of physical waste form identification..." (C-38, lines 2-6)
   - Appendix C5 (Applicability of RTR) distinguishes between "verification of physical waste form identification" (footnote B) and "verification of Waste Matrix Code" (footnote C)

   From this sample, one could draw the conclusion that physical waste form is synonymous with Summary Category Group, Waste Matrix Code, waste stream description, or something else.

   Likewise, confusion results from intermingling terminology from two separate yet often referenced documents: the "Transuranic Waste Baseline Inventory Report" and the "Transuranic Waste Characterization Quality Assurance Program Plan." For example, alternating between "matrix parameter category" and "Waste Matrix Code" creates unnecessary distinctions where none should exist.

   Revise the application to use precisely defined and consistently applied terminology to all aspects of waste characterization of TRU mixed waste.

2. The permit application uses the term "container" in referring to a drum, canister, Standard Waste Box (SWB), or Ten-Drum Overpack (TDOP) unit (page C-2, lines 13-1). This definition becomes problematic when evaluating discussions of waste characterization on a container. How are radiography, visual examination, headspace gas sampling, and homogeneous waste sampling performed on a TDOP? What procedure ensures all drums within a TDOP are from the same waste stream? Revise the application to clarify what constitutes a container for waste characterization purposes, or describe the unique characterization procedures necessary for each type of container.

WIPP PART B PERMIT APPLICATION REVIEW
WASTE ANALYSIS PLAN

CHAPTER C

SPECIFIC COMMENTS

1.* **Chapter C, Introduction, Page C-4, Lines 12-15.** The permit application is unclear, within the text of the application, what constitutes "all required waste characterization." The reader is only presented with Figures C-1 and C-2 to identify these requirements. Revise the permit application to include, within the text of Chapter C, a clear summary of the required waste characterization steps for both newly generated and retrievably stored wastes, distinguishing between requirements for homogeneous solids/soils/gravel and debris wastes. Also, the description of events presented in this portion of text is unclear whether the two referenced activities are simultaneous or sequential. Revise the permit application to clearly state the generator sites will first conduct all the required waste characterization for a waste stream, and then will complete the Waste Stream Profile Form documenting the results of their characterization activities for that particular waste stream.

2. **Chapter C, C-1 Facility Description, Section C-1a, Description of Processes and Activities at the WIPP, Page C-5, Lines 2-22.** The permit application presents ten major generator/storage sites, but does not indicate which of these have currently met the certification requirements discussed in Section C-5 of the permit application. The permit application only infers that small generator/storage sites will be identified to NMED as they are certified, but does not indicate whether the major generator sites have been certified. Revise the permit application to include this information.

3. **Chapter C, C-1 Facility Description, Section C-1b, Identification Of TRU Mixed Waste Managed at the WIPP Facility, Page C-10, Lines 22-28.** The permit application originally included a discussion indicating that if new hazardous waste codes in a given waste stream were identified, those wastes cannot be accepted until a permit modification has been submitted and approved. This statement was removed from the permit application, with no apparent replacement text stating that the waste streams identified are done so on a site-specific basis, and therefore identification of a new EPA hazardous waste code for a given waste stream would result in ceasing shipment of wastes from the specific site only. The permit application should also indicate that if a new EPA hazardous waste code is identified for a site-specific waste stream, this information will be shared with other sites that may have comparable waste streams, to ensure complete characterization of these waste streams, as well. Revise the permit application to address these concerns.

4. **Chapter C, C-1 Facility Description, Section C-1b, Identification of TRU Mixed Waste Managed at the WIPP Facility, Page C-10, Lines 22-28.** The WAP indicates in this section that each waste stream will be accompanied by a waste profile form, but does not indicate whether each waste stream within each shipment will have the form, or if the form will be presented once for each waste stream. Also, it is not clear whether each waste stream batch or waste stream lot will have a unique waste profile form. Revise the permit application to indicate that the Waste Profile Form will be provided once for a given site-specific waste stream, that the Waste Profile Form will be provided with each shipment of a given waste stream, and/or that the Waste Profile Form will be provided for each waste

stream batch and waste stream lot. The permit application implies in Section C5 that full characterization of an entire waste stream will be accomplished prior to filling out of the Waste Profile Form. However, this is not presented in Section C-1. Revise the permit application to clarify whether a Waste Profile Form will be prepared for a subset of a given waste stream before full headspace gas and radiographic characterization of the entire waste stream. If this is the case, revise the permit application to indicate how the number of drums deemed sufficient to fill out a Waste Profile Form is determined.

5. **Chapter C, C-1 Facility Description, Section C-1b, Identification Of TRU Mixed Waste Managed at the WIPP Facility, Page C-11, Lines 40-43, Page C-12 Lines 1-33.** The permit application includes brief summaries of the waste summary categories proposed for acceptance at WIPP. However, these discussions are too general and must include more detailed discussion of waste within these categories, including waste parameters, waste streams and anticipated hazardous waste, as well as examples of hazardous constituents. Specific attention must be paid to the hazardous waste potentially present within each Waste Summary Category. Revise the text of the permit application to include this information.

6.* **Chapter C, C-1 Facility Description, Section C-1b, Identification Of TRU Mixed Waste Managed at the WIPP Facility, Page C-12, Lines 35-43, Page C-13, Lines 1-2.** Radiography is incorrectly equated to visual examination, but the application elsewhere clearly delineates between the two activities. Both are forms of visual inspection, as referred to in the regulations. Revise this section of the application to use these terms in a precise manner, and include their definitions in the glossary.

7.* **Chapter C, C-1 Facility Description, Section C-1b, Identification Of TRU Mixed Waste Managed at the WIPP Facility, Page C-15, Lines 6-7.** Free liquids are acceptable at WIPP in the form of residual liquids within containers. Revise this section to state that liquid waste is unacceptable for management at WIPP.

8. **Chapter C, C-1 Facility Description, Section C-1b, Identification of TRU Mixed Waste Managed at the WIPP Facility, Page C-15, Lines 15-16.** The permit application states that "headspace-gas volatile organic compounds (VOC) concentrations resulting in emissions not protective of human health and the environment" will not be accepted. The permit application does not indicate, in this location, where these values are presented within the permit application. Table C-5 appears to present this information, but the table does not indicate where, within the permit application, the background calculations are included to derive the information presented in this table. Revise this section of the permit application to reference Table C-5, and include a reference in Table C-5 as to where supporting calculations are included. Also refer to comments on Table C-5 and Appendix D9.

9.* **Chapter C, Section C-1d, Description of HWMUs, Page C-22, Lines 16-19.** This section incorrectly implies only one surface HWMU has been designated. Revise this section to be consistent with the description of all container storage HWMUs described in Section B-1b(1) and Section D-1a(1).

10. **Chapter C, Section C-2b, Criteria and Rationale for Parameter Selection, Page C-24, Lines 12-14.** The permit application states "Documented acceptable knowledge will be used to determine the types and quantities of listed and toxicity characteristic waste that cannot be directly sampled for total metals or total organics." However, a detailed discussion and supporting documentation are not provided to justify the use of acceptable knowledge for

determining the quantities of the toxicity characteristic constituents per 20 NMAC 4.1, Subpart V, §264.13. Revise the permit application, where appropriate (e.g.Appendix C9) to include a more detailed discussion and supporting documentation justifying the use of acceptable knowledge to determine the quantities of the toxicity characteristic constituents.

11. **Chapter C, Section C-2a, Selecting Waste Analysis Parameters, Page C-24, Lines 23-28.** In general, the level of detail of RH waste information is severely lacking. Furthermore, the RH waste information that is provided is speculative in nature. To illustrate, the permit application states "sampling and analytical methods have not been specifically developed for RH waste," "methods currently planned to be used for RH wastes," "RH waste may impose additional limitations on existing methods," and "methods may need to be revised...to characterize...RH waste (emphasis added)." This vague approach is lacking in crucial detail for waste analysis. The application must include the specific sampling and analytical methods along with all of the associated QA/QC parameter information. This information is required per 20 NMAC 4.1, Subpart V, §264.13(b)(2). Revise the permit application to include the necessary information.

12.* **Chapter C, Section C-3, Characterization Techniques and Frequency, Page C-25, Lines 33-38.** The permit application states that "Radiography is used to verify the physical form of retrievably stored wastes and to determine the characterization procedures required." Revise the permit application to indicate who is responsible for the determination of the characterization procedures. Also, for newly-generated wastes the application states that, "physical form will be verified during packaging." Revise the permit application to indicate who is responsible for this verification and the documentation associated with the procedure.

13. **Chapter C, Section C-3a, Newly Generated Wastes, Page C-26, Lines 11-13.** The permit application states that for "newly-generated wastes, verification that the processes generating the waste have operated within the established written procedures will take place." Revise the permit application to clarify what procedures are referenced by this statement, clarifying whether these procedures are site-specific and, if so, whether the generator site programs will be approved by WIPP through the approval of their QAPjPs, the role of the audit program in evaluating these procedures, and notification when procedures change. Also, to ensure consistency among the generators the application must include general guidance on the minimum standards that each of the stated generator-site specific procedures must meet. Page C-26, line 32-33, states that " The bounds for a waste generating process will be established by the specific written procedures for that process." Since any variability of input parameters may affect the output of the material from a process, it is critical that the parameter bounds for each process are consistently established among all generator sites. Revise the permit application to address these concerns.

14. **Chapter C, Section C-3a, Newly Generated Wastes, Page C-26, Lines 16-18.** The permit application states that a "second, independent operator" will perform verification review of process information. Revise the permit application to discuss whether this independent reviewer is independent of DOE, and/or the generator site. Additionally, revise the permit application to provide the written procedures used to perform the verification procedure, and include the documentation procedures that will be maintained for this verification review. Also, since the WAC and QAPP are not attached as part of the permit application, the specific training requirements that the two documents contain must be included in the application. Revise the permit application accordingly.

15. **Chapter C, Section C-3a, Newly Generated Wastes, Page C-26, Lines 22-23.** This section states that all newly-generated waste containers will undergo headspace-gas analysis for total VOC. However, the permit application also states that for RH-TRU mixed wastes, headspace sampling would not be performed. Revise the permit application to clarify whether the newly-generated RH-TRU mixed wastes would also undergo headspace-gas sampling and analysis. Clarify, within the permit application, that the DOE will impose the same sampling and analysis requirements on RH-TRU as are applied to CH-TRU, or provide the specific alternatives for characterization for RH-TRU waste. Also revise the permit application to indicate the factors that will be used to determine sampling and analyses of RH TRU waste.

16. **Chapter C, Section C-3a, Newly Generated Wastes, Page C-26, Lines 27-43.** The application states that "newly-generated waste streams of homogenous solids and soils/gravel wastes will be randomly sampled once per year or once per process batch. Sampling frequency of once per year is only allowed if a process has operated within established bounds. Otherwise, the waste must be considered as process batches." DOE has not provided sufficient information, within the permit application, to demonstrate that one sample per year or process batch is sufficient to representatively capture the variability in constituent concentrations. Simply stating that "if a process does not change then the wastes generated will have the same characteristics" is insufficient justification. For example, it is not clear how changes that are not visible within a process are accounted for: e.g. degeneration of equipment or unnoticed process equipment malfunction may certainly change the final waste output composition. If a sample is taken only once a year, such a difference would remain undetected. Revise the permit application to include more detailed and comprehensive justification for the single sample/year requirement.

    The statement, "Events where procedurally established bounds are exceeded... could trigger an increased sampling frequency of a waste stream" is vague. Revise the permit application to clearly state such events will require increased sampling frequencies. Also, revise the permit application to explain how DOE will determine what "established bounds" are and how DOE will verify this when samples are only taken on an annual basis. It appears, from the text of the permit application, that the bounds established for each process at each generator site may vary, even if the process is the same. For example, the response states that "The bounds for a waste generating process will be established by the specific written procedures for that process." Since each generator site has control over their own "specific written procedures" it is unclear how DOE will establish consistency in the procedure for the same processes among all of the generator sites. That is, one generator site may have a more "loose" set of procedures while another site has established very stringent procedures. Finally, revise the permit application to discuss what will happen if a particular process does not have written procedures, as it is not clear how the "bounds" from the such processes will be established.

17.* **Chapter C, Section C-3a, Newly Generated Waste, Page C-27, 1-2.** Revise the permit application to indicate what actions will be taken if any "records of analysis" are not "available for examination by the auditors."

18.* **Chapter C, Section C-3a, Newly Generated Wastes, Page C-27, Lines 2-3.** The permit application has been modified to state that "If a generator site changes a process but determines that increased sampling is not required, the DOE/CAO must be notified." Revise the permit application to provide more detail on when a generator site may change a process. Also, indicate within the permit application how and by whom the determination for not

requiring increased sampling is made. Also revise the permit application to include the procedures when increased sampling is found to be necessary. Finally, revise the permit application to include the documentation/notification procedures and the time frame that the notification will take place.

19.* **Chapter C, Section C-3a, Newly Generated Waste, Page C-27, Lines 13-15.** Revise the permit application to indicate how wastes that are generated by processes that do not have established procedures are characterized, if sampling and analysis cannot be performed. For example, it is unclear how acceptable knowledge will be applied in such cases.

20. **Chapter C, Section C-3b, Retrievably Stored Wastes, Page C-28, Lines 2-5.** The permit application includes confusing and contradictory information regarding the performance of inner bag gas sampling. Although these lines were deleted in this revision, Appendix C-4 still includes procedures for performing headspace gas sampling on inner bags. Revise the permit application to clearly state that inner bag sampling will be performed and describe how the resultant data will be used. Alternately, revise the application to state that the DOE will rely on headspace gas sampling only.

21.* **Chapter C, Section C-3b, Retrievably Stored Wastes, Page C-29, Lines 11-13.** Revise this section to conform with the approval procedure described in Appendix C-7, which provides NMED with concurrent review and approval of all new analytical methods included in the Methods Manual. Also, delete the word "draft" when referring to the approval procedure in Appendix C-7.

22. **Chapter C, Section C-4a, Sampling and Analytical Methods, Page C-34, Lines 7-8.** It is implied by the text that the use of cleanup/preparation methods for SVOC analysis will be the prerogative of the analyst. This assertion is not correct. To illustrate, SW-846 Method 8250A Section 7.0 Procedure states in Section 7.1: "Sample preparation-Samples must be prepared by one of the following methods prior to GC/MS analysis" (SW-846 continues, listing several SW-846 sample preparation methods), and in Section 7.2: "Extract cleanup- Extracts may be cleaned up by any of the following methods prior to GC/MS analysis" (SW-846 continues, listing several SW-846 extract cleanup methods). SW-846 presents several sample preparation methods from which the analyst chooses the appropriate sample preparation method. Also, SW-846 presents several extract clean up methods from which the analyst chooses the appropriate extract clean up method(s), if necessary and as necessary. It is not up to the analyst to select any method he/she desires. Revise the permit application to state that if sample preparation and/or extract clean up are required, the analyst will follow the information provided in the Methods Manual and SW-846.

In addition, the permit application indicates that if cleanup is required, the analyst will be referred by the Methods Manual to SW-846 for those methods. This assertion is not correct. To demonstrate, Methods Manual Method 430.5 (which corresponds to SW-846 Method 8250A) states, in Section 8.0 Procedure: "Each site must decide, based on the nature of their waste stream, what preparation and cleanup methods are appropriate for their waste types. Use of preparation and cleanup methods in SW-846, or other nationally recognized standard methods (e.g. ASTM) is acceptable. The analyst is referred to Sections 7.3 through 7.6 of SW-846 Method 8250A.." Furthermore, Appendix C12 (comparison of Methods Manual and SW-846), page C12-19 compares Section 8.0 of Methods Manual 430.5 to Section 7.0 of SW-846 8250A. This comparison matches the information presented in the Methods Manual. The Methods Manual Method 430.5 Section 8.0 must fully direct the analyst to SW-846 Method

8250A Sections 7.1 and 7.2 for sample preparation and extract clean up procedures. Revise the permit application's Appendix C12 page C12-19 (under the heading Methods Manual Method 430.5 section 8.0) to state that the analysis is referred directly and only to SW-84 Method 8250A Sections 7.1 and 7.2. Alternatively, revise the permit application to require justification for not using sample preparation and extract clean up procedures associated with an analytical procedure.

23.* **Chapter C, Section C-4a, Sampling and Analytical Methods, Page C-34, Lines 15-17.** The Performance Demonstration Program (PDP) referenced as (DOE, 1995c) is for the analysis of simulated headspace gases only. Revise the permit application to reference all PDPs by which laboratories must be qualified in order to conduct the require analyses.

24.* **Chapter C, Section C-4a, Sampling and Analytical Methods, Page C-34, Lines 17-19.** Tables C-9, C-10 and C-11 of the application have been revised to state that the "most recent version of SW-846" will be used for analyses. However, this section of the application states that the labs will use methods presented in "SW-846 (EPA, 1986)." This version of SW-846 is not the most recent version. Revise the permit application to clarify this, and to ensure that the labs are able to perform all of the required methods for the characterization of wastes at WIPP.

25. **Chapter C, Section C-4a, Laboratory Selection, Page C-34, Lines 22-28.** The Methods Manual is stated to be "a unified source of information on the sampling and analytical techniques...". The document must be revised and either included as an appendix to the permit application or submitted separately for NMED approval. Refer to the general and specific comments provided on the Methods Manual.

The response to original comment #55 also states that Tables C-8, C-9, C-10, and C-11 now list the Methods Manual method number, as well as the SW-846 method number. However, Table C-8 does not include any method numbers, but rather references the sections of the QAPP that contain the analytical technique information. Revise the table to include the exact method numbers from the Methods Manual.

26. **Chapter C, Section C-4a, Sampling and Analytical Methods, Page C-34 and C-35, lines 34-40 and 1-6, respectively.** The permit application states that "Alternative methods must demonstrate equivalency...". This statement is not of sufficient detail, as it does not adequately address the concept of equivalency. Revise the permit application to indicate the following: "In the event that the SW-846 method cannot meet program specific QAOs and alternate method may be submitted to CAO for approval. Since the original method is not acceptable for use due to inability to meet QAOs, the alternative method would have to be more sensitive and stable. This would mean that the methods submitted as alternatives would be more restrictive as far as data acceptability than SW-846 methods." In addition, Appendix C7 has not been referenced in the text of the permit application, which indicates that the method must be submitted to NMED for approval. Revise the permit application to include this information.

27.* **Chapter C, Section C-4c, Radiography, Page C-36, Lines 4-6.** The permit application indicates that due to the cost of radiography that "smaller generator sites reserve the right to conduct visual examination of waste containers in lieu of radiography." It is unclear how these sites will determine percent free liquid content by visual examination and that all waste

containers will undergo visual examination if a smaller generator site does not use radiography. Revise the permit application to address these concerns.

28. **Chapter C, Section C-4c, Radiography, Page C-36, Lines 3-9.** The permit application indicates that radiography will be used as a non destructive means of waste examination. While real time radiography (RTR) is the specific "type" of radiography described in supporting documents, the DOE has indicated that other radiographic methods could be used in the future. Revise the permit application to indicate what other radiographic means are being developed, that the specific quality assurance, quality control, training, etc. associated with RTR also apply to these methods, and that NMED will review and approve these alternative methods prior to implementation.

29. **Chapter C, Section C-4c, Radiography, Page C-36, Lines 3-13.** Revise the permit application to state how an accurate measurement of $< 1\%$ free liquids can be made (refer to Appendix C4, Revision 5 of the WIPP WAC, and the Methods Manual). With such a precise amount (1%) it is not clear how a visual reading will derive the required accuracy. Since each radiography reader is different in their interpretation, it is not clear if this method will produce accurate and verifiable results. Revise the permit application to address this concern.

    Furthermore, the permit application does not include sufficient detail regarding physical waste form characterization using radiography and visual examination. Revise the permit application, where appropriate, to include more detail regarding radiography and visual examination, QA/QC, etc. (include or refer to portions of the Methods Manual).

30. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-36, Lines 19-20.** To ensure proper waste characterization and data verification at each of the generator sites, for each of the "multiple levels", the data review process must be clearly discussed. For example, the permit application must delineate the items that are to be reviewed at the data generation level. The permit application must also identify all corrective actions associated with each level (e.g. at the data generation level, describe what actions will be taken if 100% of the data do not meet the specified criteria). Revise the permit application to address these concerns.

31. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-36, Lines 18-25.** Although Appendix C8 addresses data validation and provides some QAO information for sampling methods, the specific data validation methods presented within the permit application are of inadequate detail. That is, the data validation guidelines provided are very general and do not provide enough specific criteria to verify the validity of either qualitative or quantitative data. The specific data validation procedures (and associated checklists) must be provided or referenced in the WAP. Revise the permit application to include the following:

    - All criteria for the acceptance, rejection or qualification of all data;
    - The checklists that are to be used;
    - Definition of all qualifiers that will be applied to the data during the validation; and
    - Corrective action measures that will be taken on all unusable data.

32. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-36, Lines 30-31.** Revise the text of the permit application to specify the personnel

involved in the independent data review and provide a complete description of the independent review process in the permit application. For example, specifically state, within the text of the application, that the data will be reviewed at the data generation level by a qualified operator, followed by a technical supervisor, etc.

33.* **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-38, Lines 18-22.** Revise the permit application to include the corrective actions a Site Project Manager will take if reconciliation of data sets with the DQOs is not established.

34. **Chapter C, Section C-4d, Data Generation, Page C-39, Lines 30-43.** The permit application states "The data reporting format will include all of the elements required by the QAPP for data reports." Since the QAPP was not included as part of the permit application, revise the permit application to specifically delineate this information.

35. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis, Page C-39, Lines 39-43.** The permit application states that standardized formats will be used by each generator to report waste characterization data. DOE has indicated in response to NMED, comments on the QAPP (Rev. B), that it will not require a standardized form, but a listing of those elements that must be included should be provided. Revise the permit application to include a listing of the elements of the QAPP that are required for all data reports. This is required, as 20 NMAC 4.1, Subpart V, §264.602 states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment..".

36. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-40, Lines 14-17.** The permit application states that lab audits cover "the requirements of the lab's QA/QC...". This statement is vague, as laboratory QA/QC programs could be quite variable. To ensure that each laboratory meets the same minimum criteria, revise the permit application to include the specific minimum requirements that each laboratory must meet to pass a laboratory audit.

37. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-40, Lines 29-40.** The permit application must be revised to identify the contents of the data validation package to ensure consistency among all of the generator sites. Also, revise the permit application to provide more detail on the electronic deliverable format that will be used by all sites submitting their reports in this format.

38. **Chapter C, Section C-4d, Data Transmittal, Pages C-40 and C-41, Lines 21-43 and 1-3, respectively.** A detailed discussion of the content of the data report transmittal protocols is not provided in the permit application. Even though the data report transmittal protocols have not yet been developed, the permit application must be revised to include detailed contents of the data report transmittal protocols per 20 NMAC 4.1, Subpart V, §264.602 which states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include detailed contents of the data report transmittal protocols that will be used.

39. **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-41, Lines 7-23.** Revise the permit application to include discussion regarding documentation of the various data verification levels described within this portion of the

permit application. Also, reference Figure C-5 at the beginning of this selection and ensure consistency between the figure and text.

40. **Chapter C, Section C-4d, Data Verification, Page C-41, Lines 7-23.** Detailed procedures for waste screening determinations is not provided in the permit application. Even though the procedures for waste screening determinations have not yet been developed, the permit application must be revised to include detailed contents of the procedures for waste screening determinations per 20 NMAC 4.1, Subpart V, §264.602 which states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include detailed contents of the procedures for waste screening determinations that will be used.

41.* **Chapter C, Section C-4d, Quality Assurance Sampling and Analysis Requirements, Page C-41, Lines 27-31.** Specify, in the application, the length of time each generator site is required to maintain project files/records.

42. **Chapter C, Section C-5a, Phase I Waste Stream Screening and Verification, Page C-43.** Revise the permit application to include the response provided to original comment #53. Specifically state that the "inventory check is a part of the overall data review performed during the Phase I screening process." Finally, specify the elements that are included in the overall data review during the Phase I screening process.

43. **Chapter C, Section C-5a, WIPP WWIS Description, Pages C-45 and C-46, Lines 11-42 and 1-18, respectively.** The permit application does not include a list of the specific WWIS reports that will be retained in the operating record; details of the contents of the WWIS "Report of Data for Waste Containers"; the length of time the archived copy of WWIS database will be retained in the operating record; and the length of time the hard copies of the WWIS reports will be retained in the operating record. This is unacceptable because 20 NMAC 4.1, Subpart V, §264.602 states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to provide a list of the specific WWIS reports that will be retained in the operating record; details of the contents of the WWIS "Report of Data for Waste Containers"; the length of time the archived copy of WWIS database will be retained in the operating record; and the length of time the hard copies of the WWIS reports will be retained in the operating record.

44. **Chapter C, Section C-5a, WIPP WWIS Description, Pages C-45 and C-46, Lines 39-42 and 1-18, respectively.** The WWIS reporting frequency has not been provided nor has the justification been provided that the integrity of the WWIS will be ensured. This is unacceptable because 20 NMAC 4.1, Subpart V, §264.602 states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to provide the WWIS reporting frequency and justification that the integrity of the WWIS will be ensured.

45. **Chapter C, Section C-5a, WIPP WWIS Description, Pages C-45 and C-46, Lines 11-42 and 1-18, respectively.** Detailed procedures/SOPS for all functions affecting the WWIS are not provided in the permit application. Even though the procedures/SOPS for all functions affecting the WWIS have not yet been developed, the permit application must be revised to include detailed contents of the procedures/SOPS for all functions affecting the WWIS, including procedures for mitigating catastrophic failure of the WWIS, per 20 NMAC 4.1,

Subpart V, §264.602 which states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include detailed contents of the procedures/SOPS for all functions affecting the WWIS that will be used.

46.* **Chapter C, Section C-5a, Phase I Waste Stream Screening and Verification, Page C-47, Lines 32-37.** The permit application states "Since the Part A does not include hazardous waste codes that are not consistent with the waste acceptance criteria, a consistency check between the hazardous waste codes for the waste stream and the hazardous waste codes listed on the Part A will verify that the waste stream is not ignitable, corrosive, or reactive, and that it is compatible with the other waste to be disposed of at the WIPP facility." This consistency check alone is not an acceptable approach. Each waste stream must be fully characterized using acceptable knowledge and sampling and analysis (if applicable) to document and confirm the hazardous characteristics (i.e., ignitable, corrosive, reactive) constituents, quantities and compatibilities. After this full characterization is completed for each waste stream, a consistency check should be performed. Revise the permit application to state that a consistency check alone is not acceptable, but a full characterization followed by a consistency check is sufficient.

47. **Chapter C, Section C-5b, Examination of the EPA Uniform Hazardous Waste Manifest and Associated Waste Tracking Information, Page C-51, Lines 13-18.** The permit application states that if a discrepancy is noted, the generator will be contacted "within 15 days." This citation is incomplete because 20 NMAC 4.1 Subpart V, §264.72(b) specifically states that this notification must "within 15 days of receiving the waste." Also, the permit application states that a decision regarding outstanding discrepancies will be made "within 30 days", but the application should specify that this decision will be made "within 30 days of the date of the notification of the discrepancy". In addition, the permit application state that the waste will be "retained" during discrepancy resolution, but does not specify where (e.g. Waste Handling Building). The specific location of waste retention must be cited, as per 20 NMAC 4.1, Subpart V, §264.602, which states "..inspections, response, and reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to address these specific concerns.

48. **Chapter C, Section C-5b, Examination of the EPA Uniform Hazardous Waste Manifest and Associated Waste Tracking Information, Page C-51, Lines 25 and 26.** The permit application states "The reason plus a record of the change log will be maintained in the change log of the WWIS." However, the permit application should specify that "This reason, plus the record of the WWIS data change, will be maintained in the Change Log of the WWIS," The permit application is unacceptable because 20 NMAC 4.1, Subpart V, §264.602 states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to address these concerns.

49. **Chapter C, Section C-5b, Examination of the EPA Uniform Hazardous Waste Manifest and Associated Waste Tracking Information, Page C-51, Lines 29-31.** The permit application states "The Waste Operations section will be responsible for...returning the original copy of the manifest to the generator. The manifest will be returned as soon as the waste is accepted for disposal." However, 20 NMAC 4.1, Subpart V, §264.71(a)(4) states "Within 30 days after the delivery, send a copy of the manifest to the generator," and 20

NMAC 4.1, Subpart V, §264.71(b)(4) for rail states "Within 30 days after the delivery, send a copy of the signed and dated manifest to the generator." Revise the permit application to correctly reflect the manifest return regulations.

50. **Chapter C, Section C-5b, Examination of the Land Disposal Restriction (LDR) Notice, Page C-51, Lines 35-43.** This section states the wastes will be in conformance with conditions of the NMD. However, the No Migration Variance Petition schedule is different than that for the permit application, and it is not conclusive that the NMD will be granted. Therefore, the permit application must be revised to indicate that waste will meet LDR requirements or the current standard, given that the current standard could mean NMD or land disposal restriction requirements. Revise the permit application to state this. Also, there are no mechanisms in place to determine that this conformance assessment will occur. Revise the permit application to indicate how LDR compliance conformance will be ensured.

    In addition, the regulatory citation regarding notification is incorrectly stated as 20 NMAC 4.1, Subpart V, §268.7(a)(3). There is no such regulation. The correct regulatory citations are 20 NMAC 4.1, Subpart V, §268.7(b)(4) for notification and 20 NMAC 4.1, Subpart V, §268.7(b)(5) for certification. Revise the permit application to reflect the correct regulatory citation.

51. **Chapter C, Section C-5b, Verification, Page C-52, Lines 3-17.** The permit application states that written procedures will be used to perform verification. However, detailed content of the verification procedures is not provided. Even though the verification procedures have not yet been developed, the permit application must be revised to include detailed contents of the verification procedures per 20 NMAC 4.1, Subpart V, §264.602, which states "Monitoring,..inspections,..procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include detailed contents of the verification procedures that will be used.

52. **Chapter C, Section C-5b, Verification, Page C-52, Lines 3-17.** Section C-5b of the permit application states "The number and type of containers holding TRU mixed waste match the information in the WWIS. Container defects will be inspected during the verification process". Section D-10a(3)(b) states "..container identification numbers will be verified against the WWIS." Section C-1a states "checks will be conducted to verify that the waste containers are the same as those described on the..WWIS.." These three statements illustrate that a complete and consistent list of the items inspected during the verification process is not provided in the permit application. In addition, discrepancy resolution procedures associated with the verification process are not provided in the permit application. The permit application must be revised to include a complete and consistent list of the items inspected during the verification process, and discrepancy resolution procedures associated with the verification process per regulation 20 NMAC 4.1, Subpart V, §264.602 which states "Monitoring, ..inspections, ..procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include a complete and consistent list of the items that will be inspected during the verification process, and discrepancy resolution procedures associated with the verification process.

53. **Chapter C, Section C-5b, Waste Shipment Screening QA/QC, Page C-52, Lines 21-31.** The permit application briefly mentions procedures, work sheets and checklists associated

with waste shipment screening QA/QC. However, the procedures, work sheets and checklists associated with waste shipment screening QA/QC are not provided in the permit application. All procedures, work sheets and checklists associated with waste shipment screening QA/QC must be provided in the permit application per 20 NMAC 4.1, Subpart V, §264.602 which states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include the procedures, work sheets and checklists associated with waste shipment screening QA/QC.

54. **Chapter C, Section C-5b, Records Management, Page C-53, Lines 11 and 12.** The permit application briefly mentions records management procedures. However, records management procedures are not provided in the permit application. All records management procedures must be provided in the permit application per 20 NMAC 4.1, Subpart V, §264.602 which states "..reporting procedures and frequencies must ensure compliance..as well as meet additional requirements needed to protect human health and the environment.." Revise the permit application to include the records management procedures.

55.* **Chapter C, Section C-5b, Records Management, Page C-53, Lines 12-34.** The permit application does not state that the required information will be recorded and maintained in the operating record until closure of the facility per 20 NMAC 4.1, Subpart V, §264.73. Revise the permit application to address §264.73 regarding recording and retaining the required information in the operating record until closure of the facility.

56.* **Table C-3, Page C-111.** As per 20 NMAC 4.1, Subpart V, §264.13(b)(1), "(The plan must specify) the parameters for which each ... waste ... will be analyzed and the rationale for the selection of these parameters." Several compounds listed in Table C-3 do not include the rationale for selection. Provide the rationale for selection of the following parameters: Cyclohexane, 1,1-dichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and zinc.

Vanadium oxide (CAS 1314-62-1) is listed on Table C-3, but the QAPP (Table 15-1) lists Vanadium (CAS 7440-62-2). Revise Table C-3 appropriately, and provide the rationale for its selection.

57.* **Table C-4, Page C-113.** Revise Table C-4 of the permit application under "Rationale for Transuranic Mixed Waste Compliance," Corrosivity, to state "Liquid waste (**greater** than one percent by volume) is prohibited by WAC."

58.* **Table C-5, Page C-114.** Revise Table C-5 of the permit application to include all calculations and justification for data presented in this table. Alternatively, revise the table to reference where, in the permit application, this information is included.

59.* **Table C-8.** The response to original comment #55 also states that Tables C-8, C-9, C-10, and C-11 now list the Methods Manual method number as well as the SW-846 method number. However, Table C-8 does not include any method numbers but rather references the sections of the QAPP that contain the analytical technique information. Revise the table to include the exact method numbers from the Methods Manual and SW-846 documents.

Many inconsistencies remain on Table C-8. Three compounds (2-ethoxyethanol, ethyl acetate, and 2-nitropropane) appear on the list to be analyzed for total VOCs, yet do not appear on Table C-3. These three compounds, plus an additional eight compounds (carbon

disulfide, 1,4-dichlorobenzene, o-dichlorobenzene, isobutanol,pyridine, trichlorofluoromethane, 1,1,2-trichloroethane, and vinyl chloride) appear on the list to be analyzed for total VOCs, yet do not appear on the list of VOCs for headspace gas analysis. Finally, five compounds (cyclohexane, 1,1-dichloroethane, (cis)-1,2-dichloroethylene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene) appear on the list to be analyzed for headspace gases, yet do not appear on the list to be analyzed for total VOCs. It is unclear how results from headspace gas analysis will be compared with results from total VOC analysis if the analyte lists are inconsistent. Revise the permit application to ensure all tables are cross-consistent with each other and with the rest of the application, or to reference where, within the permit application, this information is included. Alternately, revise the application to justify these apparent inconsistencies between the tables.

60.* **Table C-9, page C-126.** Table C-9 lists Methods Manual "Method 440.4" however, no reference to this method has been included in Appendix C12. Clarify and ensure that information provided in the table and appendix are consistent.

61.* **Table C-10, Pages C-127, C-128, and Table C-11, Page C-129.** The tables should be revised to accurately identify the corresponding SW-846 method and Methods Manual Method. For example, the following inconsistencies were noted between the information presented in the table and Appendix C12:

- According to Appendix C12 Methods 430.3 and 430.4 correspond with SW-846 Methods 8240B and 8260A, respectively;
- According to Appendix C12 Method 430.5 and 430.6 correspond with SW-846 Methods 8250A and 8270B, respectively;
- It is also unclear why SW-846 Methods 8000 and 8015 have been listed on the table since according to the information presented in Appendix C12, none of Methods Manual Methods listed correspond to that methods;
- According to Appendix C12, Method 640.1 corresponds with SW-846 Method 6010A;
- According to Appendix C12, Method 650.4, corresponds with SW-846 Method 7061A;
- According to Appendix C12, Method 650.1 corresponds with SW-846 Methods 7080A (barium) and 7760A (silver);
- According to Appendix C12, Method 650.2 corresponds with SW-846 Method 7131A;
- Appendix C12 does not list SW-846 Method 7470; however, Table C11 lists this method under Methods Manual Method 650.3;
- According to Table C-11, nickel may be analyzed by Methods Manual Method 650.2; however neither Table C-11 nor Appendix C12 have listed a corresponding SW-846 Method;

- According to Appendix C-12, Method 650.6 corresponds to SW-846 Method 7741A;

The issue of obtaining comparable data between generator sites is critical. These discrepancies must be resolved and ensure that information provided throughout the application are accurate and consistent.

62.* **Table C-12, WWIS Data Fields, Pages C-130 and C-131.** Table C-12's Footnote 1 states "..contains the fields that are pertinent to RCRA." This statement is incorrect because not all of the fields pertinent to RCRA are accounted for in the Characterization Module Data Fields. To illustrate, there are three types of totals analyses being performed -- VOCs, Semi-VOCs and metals. However, in the Characterization Module Data Fields there are four fields in the "Totals" category and four fields in the "Semi-VOC" category. Does the "Totals" category include both VOCs and metals or just one of the two? If the "Totals" category includes just one of the two, which one does it include and where are the fields for the other one? Revise the table to address these concerns.

63. **Chapter C, Figure C-4, WIPP Waste Stream Profile Form, Pages C-136 and C-137.** Although some revisions were made to the figure, the form still does not address waste characterization issues, such as ignitability, corrosivity, reactivity and compatibility. Revise the form to include "Yes" and "No" check off boxes for ignitable, corrosive, reactive and compatible wastes.

Appendix C9, TRU Waste Characterization Using Acceptable Knowledge, states TRU waste stream information includes a waste generating process description. However, Figure C-4 does not include a title and underlined space for "Waste generating process description" under Acceptable Knowledge Information, Required Waste Stream Information. Revise the form to include a title and underlined space for "Waste generating process description" under Acceptable Knowledge Information, Required Waste Stream Information.

*** - New NOD Comment**

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APPENDIX C1

GENERAL COMMENTS

1.* Provide the cross reference to Appendix C11 for the WIPP Generator/Storage Site Waste Screening and Acceptance Audit Program.

2. The permit application compatibility assessment does not address a number of waste streams presented on Table C-2. Revise the compatibility portion of the permit application to provide justification of this exclusion, particularly those waste streams identified with "d" and "e" superscripts on Table C-2, which presumably provide information helpful to the exclusion. Additionally, waste streams RL-M007, RL-M017, and IN-W291 are discussed on Table C-2 but are not addressed within Appendix C1 and do not have any potential designators that could explain the waste stream's exclusion from Appendix C1. Revise the permit application to address the omissions of these waste streams from the compatibility assessment.

2. Revision 5.0 of the permit application included numerous references to test information that was to provide insight to the compatibility assessments. However, all references to these tests have been removed from Revision 5.2 of the permit application. Omission of these data do not answer the question as to whether the planned tests provided data to support the compatibility assessment. Revise the permit application to specifically discuss the tests which would provide information important to the compatibility assessment.

*** - New NOD Comment**

WIPP PART B PERMIT APPLICATION REVIEW
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APPENDIX C2

GENERAL COMMENTS

1. Revision 5.0 of the permit application included analyses for methane, ethane, propane, and hydrogen. While these are not hazardous constituents but are instead ignitable wastes prohibited by the WAC and this WAP, inclusion of them in headspace gas analyses is important because generation of said gases could occur in-situ due to biodegradation and corrosion; differentiation between original drum contents and gas generation following waste emplacement could be important. Revise the permit application to include these data.

2. The permit application does not include correlations of hazardous wastes versus waste matrix code groups. Although it is recognized that the specific list of waste within each group could be extensive (based upon information within Table C-2), it is important to include this information so that a comparison of headspace gas information with identified hazardous waste codes can be accomplished. Revise the permit application to include this information within Appendix C2.

3. The permit application does not indicate how analytes with the "E" or "J" designator were handled if a dilution analyses were not available. Further, the permit application does not indicate why multiple analyses are available for some drums but not for others. Additionally, the permit application does not specifically state how the weighting factors for Waste Matrix Code Groups were derived. Revise the permit application in Appendix C2 to address these concerns.

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APPENDIX C4

SPECIFIC COMMENTS

1.* **Chapter C, Appendix C4, Section C4-1a, Method Requirements, Page C4-5, Lines 29-31.** The permit application must be revised to clearly state the contingencies in place if the lid of the drum's 90-mil polyethylene liner does not contain a hole for venting into the drum.

2. **Chapter C, Appendix C-4, Section C4-1a, Method Requirements, Page C4-6, Lines 17-18.** The first paragraph on Page C4-6 states that "to assure that the sample collected is representative...the following requirements (must be met". A list of requirements follows. However, simply stating that "The seal between the drum lid and sampling head must be designed to minimize intrusion of ambient air", which is a requirement on this list, is not of sufficient detail. For example, the permit application should include the guidelines necessary to determine what a "minimum" amount of air within the seal may be. To ensure consistency between generator sites, and to assure that the sample collected is representative (as stated in the application) mandatory elements of procedures to prevent outside air from entering the drums must be discussed. Revise the permit application to include this information.

3. **Chapter C, Appendix C-4, Section C-1a, Method Requirements, Page C4-7, Lines 1-3.** Revise the permit application to define what flow of QC gases is considered to be "excess." This section falls under "Methods Requirements", and therefore information pertaining to the excess flow rate necessary to purge the system should be included. Revise the permit application accordingly.

4. **Chapter C, Appendix C-4, Section C4-1a, Method Requirements, Page C4-7, Lines 15-18.** The text of the application has been revised to indicate that a sample will be taken regardless of the condition of the inner 208 L poly bag (i.e if the bag is torn). If a inner bag is torn, then the sample taken would no longer be considered a headspace gas sample, but rather a sample that represents the entire container. It is unclear why the validity of such a sample taken would only be determined after sampling and analysis and not prior to sampling. It is also unclear how results from a torn inner bag will be compared with results from an intact bag, and if procedures currently exist for the retrieval and examination of a substitute drum. Revise the permit application to clarify these concerns, and indicate why an alternative headspace gas sample relative to the deteriorated area would not be taken. Also, include a discussion of the headspace gas volume estimation. Finally, it is unclear from inconsistencies within the text whether DOE truly intends to perform inner bag sampling, as the reference made to inner bag sampling in Section C-3b of the WAP has been deleted. Revise the permit application, as appropriate, to clarify this issue.

5. **Chapter C, Appendix C-4, Section C4-1a, Methods Requirements, Page C4-8, Lines 1-6.** If generator consistency is ensured by requiring documentation of information provided by the generator concerning headspace gas volume sample, this must be clearly specified in the application. Page C4-8 of the application simply states that "Site SOPs must address how information is to be documented when the estimated headspace volume is less than 1 L." This statement is vague. The application should be revised to include standard methods that

all generators can follow when the headspace volume is less than 1 L. Also, indicate how often such a situation may occur. Revise the permit application to include this information.

6. **Chapter C, Appendix C-4, Section C4-1c, Equipment Testing, Inspection, and Maintenance Requirements, Page C4-10, Lines 1-10.** The application is unclear on the number of canisters constituting a batch for cleaning purposes. Since canisters must be cleaned and certified on a batch basis, and since one canister per batch must be analyzed for VOCs as part of the headspace gas sample canister cleaning process, the size of the batch should be specified within the text of the WAP. Revise the permit application to address this concern.

7. **Chapter C, Appendix C-4, Section C4-1c, Equipment Testing, Inspection and Maintenance, Pages C4-9-C4-11, Lines 24,-36, 1-44 and 1-3, respectively.** The application does not clearly address the procedures in place for maintenance of field equipment. The application should be revised to include procedures for determining whether the sampling equipment has a leak as well as procedures for determining whether sampling heads have been properly cleaned.

8. **Chapter C, Appendix C4, Section C4-2a, Method Requirements, Page C4-12, Lines 43-45.** The Appendix indicates that the coring device sleeve material must be of a rigid material that is "unlikely to affect the composition and/or concentrations of target analytes in the sample core." Revise the permit application to provide a list of acceptable sleeve materials within the document, including references for these assessments and how these determinations will be made prior to any sampling of the waste. It is presumed that the sleeve length will be determined by examination of radiographic information.

9. **Chapter C, Appendix C4, Section C4-2a, Methods Requirements, Page C4-14, Lines 32-33.** The permit application does not provide adequate detail on the random sampling locations. Specify the procedures for the random sampling location selection. For example, specify the determinations that will be made to select the locations along the long axis of the liner. Clarify and provide detailed information within the permit application.

10.* **Chapter C, Appendix C4, Section C4-2b, Quality Control, Page C4-15, Lines 17-19.** Justification for the one out of 20 duplicate sample and equipment blank collection is not included in the application. Revise the permit application to include this information.

11.* **Chapter C, Appendix C4, Section C4-2c, Equipment Testing Inspection and Maintenance, Page C4-17, Lines 4-37.** In typical sampling situations, coring devices (e.g., split spoons) are kept on separate areas and within protective coverings (e.g., covered with aluminum foil) to prevent contamination. As described in this section, it is implied that sampling equipment (which has been presumably decontaminated) could be placed within a sample area that may allow for secondary contamination to occur following decontamination procedures. The section also indicates that packaging will be placed around cleaned equipment. As per 20 NMAC 4.1, Subpart V, §264.15(b)(1), revise the permit application to clarify these issues and ensure that equipment will be properly maintained to avoid contamination.

12. **Chapter C, Appendix C4, Section C4-3b, Quality Control, Pages C4-22, C4-23, C4-24, Lines 44-47, 1-39 and 1-24, respectively.** The discussion of the radiography training lacks necessary detail. Lines 9-14 on page C4-23 state that "The training programs will be site-

specific due to differences in equipment..." The application must be revised to discuss how these variations in radiographic technologies could potentially impact data quality and comparability.

Lines 15-16 on page C4-23 states that "...each program will contain the following required elements, or their equivalent..." This statement is confusing and contradicts the statement on Lines 45-46, page C4-22, which clearly states that "...must comply with the training and qualification requirements of NQA-1...". Clarify these statements and ensure that each generator's training programs are based on the same guidance. If "equivalent" standards to NQA-1 are permitted, revise the permit application to describe who will approve this equivalency and ensure that such approval is documented and performed prior to initiation of any radiography training. Also revise the permit application to indicate how DOE will monitor the various generator-specific radiography training programs and state that the training program is part of any site-specific audits to be performed.

Line C-16 on page C4-24, states that an operator must pass "comprehensive exam" to ensure qualification. Revise the permit application to indicate whether this is a standardized exam and, if not, how DOE will ensure that each generator's site-specific exam will be comparable. Also, line 19 on Page C4-24 references a "subject matter expert (SME)". Revise the permit application to clarify the difference between an SME and an "experienced qualified radiography operator" referenced on page C4-23.

Finally, lines 22-23 on page C4-24 state that "Unsatisfactory performance will result in disqualification." To ensure consistent operations and standards among all generator sties, revise the permit application to clearly define "unsatisfactory performance".

13. **Chapter C, Appendix C4, Section C4-3b, Quality Control, Page C4-24, Lines 30-35.** Revise the permit application to clarify whether an independent drum replicate will be collected, and by whom (ensure that it is personnel other than those who performed the first examination).

14.* **Chapter C, Appendix C4, Section C4-3b, Quality Control, Page C4-25, Lines 19-20.** Revise the permit application to specify how often a visual examiner must be re-qualified or recertified.

15.* **Chapter C, Appendix C4, Section C4-3b, Quality Control, Page C4-25, Lines 24-25.** If a generator decides to demonstrate "equivalency" to the listed NQA-1 training elements, revise the permit application to identify who will monitor and approve such activities.

*** - New NOD Comment**

WIPP PART B PERMIT APPLICATION REVIEW
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APPENDIX C7

SPECIFIC COMMENTS

1.* **Chapter C Appendix C7, Page C7-3, Second Paragraph, Lines 8 and 9.** Appendix C7 needs to clearly state the complete role of NMED in the approval process of all alternative TRU waste characterization analytical methods. NMED's role must include approval of all methods in the current version of the Methods Manual. Also, NMED's role must include approval of all methods and all method modifications proposed for inclusion in the latest version of the Methods Manual. Revise the appendix to address these concerns. Lines 8 and 9 state "Methods approved by the DOE/CAO Regulatory Compliance Manager will be incorporated into the Methods Manual." However, there is no mention of NMED's approval. Revise that sentence to state "Methods approved by the DOE/CAO Regulatory Compliance Manager and NMED will be incorporated into the Methods Manual." Revise the same paragraph to include the following statement "Methods not approved by NMED will not be incorporated into the Methods Manual and will not be used for TRU waste characterization."

*** - New NOD Comment**

WIPP PART B PERMIT APPLICATION REVIEW
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APPENDIX C8

SPECIFIC COMMENTS

1. **Chapter C, Appendix C8, Section C8-9, Acceptable Knowledge, Page C8-17, Lines 33-35.** The text of the application states that "since acceptable knowledge is verified through other analytical methods, the QAOs for these methods apply indirectly to acceptable knowledge". Since acceptable knowledge is an alternative to sampling and analysis for debris waste, it is unclear how acceptable knowledge is to be "verified through other analyses". Also, describe how the QAOs apply indirectly to acceptable knowledge. Revise the permit application to address these issues.

2. **Chapter C, Appendix C8, Section C8-10, Page C8-18, Lines 1-7.** The permit application indicates that nonconformances of QC sample results are mainly due to calibration or instrumentation errors. This is not always the case. For example, dilution errors may have occurred which are not instrument related. Revise the permit application to expand the discussion of corrective actions to include the possible corrective action for QC samples on an analytical method basis. For example, the QC analyses for metals is different from organics, therefore the associated QC information and corrective action would also be different.

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APPENDIX C9

GENERAL COMMENTS

1.* Chapter C, Appendix C9. Appendix C9 does not include discussion pertaining to the guidance and training which is provided to site personnel to ensure that each site uses the same acceptable knowledge for consistency of identification. Revise the permit application to include this information.

2.* Appendix C9 should define the overall acceptable knowledge "process", including data assembly, waste stream definition, drum/waste stream correlation, verification via sampling, radiography, etc., discrepancy resolution, and auditing. Appendix C9 must be revised to ensure that the following requirements are addressed:

- Assembly of Acceptable Knowledge Record

  - Include detail regarding which acceptable knowledge (AK) information is allowable, and provide **detailed** guidance as to how this information should be assembled, evaluated, and prioritized

  - Provide specific methodologies for identifying RCRA hazardous waste, including screening measures for unacceptable waste

  - Discuss, in detail, how discrepancy resolution between acceptable knowledge and waste analysis must be addressed

  - Specify the exact type of available documentation (e.g. road map) and include cross reference to WAP waste categories

  - State specific data quality goals, such as data accuracy, precision, representativeness, completeness, and comparability

  - For newly-generated waste, include specific instructions as to how generators document drum contents, including correlation to waste streams, RCRA waste, etc. Also define "established and documented administrative controls" for waste characterization

- Acceptable Knowledge Confirmation Process

  - Ensure all waste examination prior to shipment is considered confirmatory data acquisition, including S3000 and S4000 waste sampling

  - Establish detailed evaluation process whereby acceptable knowledge and confirmatory data are compared, to determine "correctness" of acceptable knowledge, particularly for S3000 and S4000 solid waste sampling

- Establish screening procedures for unacceptable waste

- Develop detailed documentation requirements and procedures for confirmatory process

- Audit Program

  - Ensure that program "covers" entire acceptable knowledge characterization process

  - Include/integrate, as applicable, results of other overlapping audit programs (e.g. laboratory environmental program audits)

  - Ensure availability of audit results to the regulatory agency

  - Detail information dissemination process, including discrepancy resolution, and provision of information to generator, WIPP, and regulatory personnel

3.* Revise the permit application to correct references to non-existent sections.

*** - New NOD Comment**

WIPP PART B PERMIT APPLICATION REVIEW
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APPENDIX C9

SPECIFIC COMMENTS

1.* **Chapter C, Appendix C9, Section C9-3, Acceptable Knowledge Documentation, Pages C9-3 - C9-6.** The permit application indicates that sites will be asked to gather and include specific information relative to acceptable knowledge, but does not provide guidance as to how discrepancies will be resolved. Additionally, on page C9-6, generators are required to justify the inclusion of and use of supplemental knowledge, but the permit application does not provide sufficient guidance as to how the facility should perform such justification. That is, how specific supplemental data are evaluated and compared to "required" data must be provided, with an emphasis on discrepancy resolution. Revise the permit application to address these issues.

2.* **Chapter C, Appendix C9, Section C9-4, Acceptable Knowledge Process, Page C9-6 and C9-7.** The permit application indicates that the generator sites are required to develop written procedures that describe how RCRA hazardous waste codes are assigned using acceptable knowledge. However, the permit application should include minimum baseline requirements/standards that these procedures must achieve to ensure comparable and consistent identification of hazardous waste. Revise the permit application to include this information.

Additionally, the permit application requires sites to develop procedures that describe how acceptable knowledge information will be evaluated and any discrepancies in documentation resolved. However, the permit application should include standard requirements that these procedures must include and address to ensure consistent waste characterization. Revise the permit application to include this information.

3.* **Chapter C, Appendix C9, Section C9-4, Confirmation of Acceptable Knowledge Information, Page C9-7.** The permit application indicates that acceptable knowledge verification will not include comparisons of S3000 and S4000 sampling results with acceptable knowledge characterization to confirm acceptable knowledge results. Likewise, visual examination is not included as a procedure to confirm acceptable knowledge. Revise the permit application to include such comparisons, including how the data must be evaluated. Alternatively, revise the permit application to include a detailed justification why these comparisons are not necessary or possible.

Additionally, the permit application states that sites must have written procedures to document the confirmation of acceptable knowledge information prior to or during waste packaging, for newly generated waste. However, the permit application must be revised to include minimum standards/requirements that these procedures must address to ensure consistent characterization/confirmation of new waste streams. Revise the permit application to include this information. Also revise the permit application to include a more comprehensive list of requirements included in site procedures to reevaluate acceptable knowledge if radiography or visual examination results assign the waste to a different matrix parameter category. The permit application indicates that these procedures must identify how the waste is to be

reassigned, reevaluated, and redesignated relative to hazardous waste, but detail relative to these elements is lacking. Further, revise the permit application to include more detail regarding minimum elements to be included in administrative controls over nonconforming items.

4.* **Chapter C, Appendix C9, Section C9-4, DOE Site Audits of Acceptable Knowledge, Page C9-9.** The permit application indicates that Audit Plans must be prepared that include written procedures and checklists. Revise the permit application to include more detailed information regarding the elements to be addressed by the procedures, and specific contents of the checklist. The permit application also indicates that the auditors will review "selected procedures and associated processes developed by the site for documenting the process of compiling acceptable knowledge documentation", but the permit application must be revised to include a minimum set of procedures that will be audited, as well as those portions of the audit that will be "random". Further, the criteria by which the auditors evaluate the logic and defensibility of the acceptable knowledge documentation should be included in the permit application; revise the permit application to include this information. Also revise the permit application to ensure that minimum requirements for "administrative controls" for determination of hazardous waste are included.

5.* **Chapter C, Appendix C9, Section C9-5, Confirmation of Acceptable Knowledge, Page C9-10.** The permit application indicates that the DOE/CAO will review waste stream profile forms and associated data packages to ensure that acceptable knowledge confirmation has been performed. Revise the permit application to include the specific reporting requirements that each site must follow relative to confirmation of acceptable knowledge. Revise the permit application to indicate that any drum with unresolved discrepancies identified by the DOE/CAO will not be shipped to WIPP until discrepancies are resolved. Also revise the permit application to indicate **specifically** what constitutes consistent nonconformances, and that the DOE/CAO **will** require sites to reassess materials and processes that generate the waste, including additional headspace sampling, radiography, and solid sampling/analysis; also indicate that should reassessment be required, all shipments of a waste stream from a given facility will cease until such time the situation is resolved. This is required as per 20 NMAC 4.1, Subpart V, §264.13(a)(3)(ii) which require reanalysis of a waste if discrepancies are noted, and as per 20 NMAC 4.1, Subpart V, §264.602 which requires that corrective action, as necessary, be performed to protect human health and the environment. Also revise the permit application to indicate that NMED will be notified when a given waste stream from a site breaches the nonconformance requirements, and that NMED approval must be obtained before a facility is allowed to resume shipping the given hazardous waste stream to WIPP.

*** - New NOD Comment**