August 25, 1992

A. LaMar Trego, General Manager
Westinghouse Electric Corp.
P.O. Box 2078
Carlsbad, NM 88220

Arlen Hunt, Project Manager
WIPP Project Site Office
P.O. Box 3090
Carlsbad, NM 88220

Re: Waste Isolation Pilot Plant (WIPP); Notice of Deficiency (NOD), Technical Review - Chapter C; Part B - General Comments

Dear Messrs Trego & Hunt:

The New Mexico Environment Department (NMED) has completed its technical review of Chapter C of the Part B Waste Isolation Pilot Plant (WIPP) Application, revision 1.0, dated March 1992. After reviewing Chapter C, NMED finds it to be deficient. A summary of deficiencies identified, and that must be addressed in accordance with the New Mexico Hazardous Waste Management Regulation (BWMS-6, as amended 1991), Part IX, 40 CFR §264 and 270, are included in the attached Notice of Deficiency, "Completeness and Technical Review - Chapter C". This document includes a technical review of Chapter C and general comments pertinent to the entire Application.

The WIPP Part B Application included only the wet and dry-bin tests for which NMED determined administrative completeness on July 22, 1992. NMED's administrative completeness review did not include the alcove tests. Therefore, NMED considers that the application is for only the wet and dry-bin tests.

Although NMED deemed the Part B application administratively complete for the wet-bin tests, technical review indicates that the application is grossly deficient for the wet bin tests technical information requirements. These deficiencies are of such magnitude that the time needed to address them adequately may cause Westinghouse/DOE to miss both the October 9, 1992 deadline for Chapter C deficiencies and the subsequent stopdate of November 13, 1992 for final Part B responses.
It is Westinghouse/DOE's decision whether or not to address the wet-bin tests within the application. However, the information must be technically adequate and submitted on time so as not to delay NMED's evaluation of the application. If the technical information relative to wet-bin testing is not submitted on time and/or if it lacks comprehensive, concise and clear information, then NMED must proceed with a Notice of Intent to Deny (NOID) for that portion of the application. NMED will consider neither permit conditions nor compliance schedules as a permitting mechanism should any outstanding deficiencies exist at the end of the review period relative to wet bin test.

Based on the inadequate technical information submitted for wet-bin tests in the application, the short turn around time available for providing the requisite information, and the formality of a permit denial and enforcement action, NMED recommends that Westinghouse/DOE remove the wet-bin test from the permit application at this time. Wet-bin tests may more appropriately be considered at a later date as a modification to the permit after issuance. NMED recommends that you carefully consider this option.

Each of the deficiencies identified in the enclosure must be addressed in detail by October 9, 1992. If the facility has not submitted the revisions on or prior to the above date, NMED reserves the right to pursue any administrative or enforcement action, including, but not limited to issuance of a Compliance Order or issuance of a Notice of Intent to Deny. It is NMED's position the October 9, 1992 date for receipt of Chapter C revisions is a firm date with no flexibility on the part of the applicant. Response to this NOD should be submitted by certified mail to:

Mr. Benito J. Garcia  
Environment Department  
Hazardous & Radioactive Material Bureau  
525 Camino de los Marquez  
P.O. Box 26110  
Sante Fe, New Mexico  87502

In addition, two copies of the NOD responses must be submitted to Ms. Susan Collins, also at the above address.

If you have any questions regarding this subject, feel free to contact me or Ms. Collins of my staff at (505) 827-4308.
Sincerely,

Benito J. Garcia
Bureau Chief
Environment Department, H&RMB

cc:  Barbara Hoditschek, Program Manager, H&RMB, NMED
     Trey Greenwood, Manager for Compliance, DOE
     Constance Walker, A.T. Kearney
     Susan Collins, WIPP Permit Coordinator, H&RMB, NMED
GENERAL COMMENTS

1. DOE/Westinghouse has indicated repeatedly that the Part B Permit Application which has been submitted to NMED is specific to the Test Phase. Yet, it has become apparent that the application is also intended to provide information applicable to the operational phase of WIPP. For example, DOE/Westinghouse indicates that the waste analysis plan presented within the application was specifically worded so that an "easy transition" to the operational phase activities can be made, but by doing so has not provided a clear understanding of the waste analysis activities specific to the Test Phase for which DOE/Westinghouse is seeking a permit. NMED strongly believes that by taking this approach, DOE/Westinghouse hinders the review process and subsequently significantly jeopardizes the potential for resolution of NOD comments during the interactive period.

Modify the application so that it clearly and comprehensively discusses waste characterization activities specific to the Test Phase and excludes all extraneous information not applicable to the Test Phase.

2. Indicate clearly and within all applicable portions of the application whether DOE/Westinghouse is seeking the Test Phase application for wet and/or dry bin testing. Summarize the nature of the tests to be performed under the bin-scale tests (e.g. "humidity tests") within Chapter C and other applicable portions of the application. Summarize the proposed Test Phase activities (e.g. Phase 0-Phase 3) so that the reader knows specifically which Waste Categories/Groups are intended for use during the bin-scale tests. Also, discuss in its entirety all waste characterization activities (chemical and physical) associated with preparation of the Test Phase bins, from opening of the drums following Real-Time Radiography, to final sealing/heads pace gas analyses, to emplacement of bins in the subsurface. This is required so that the application clearly discusses all waste characterization activities that are performed to ensure that the contents of the bins are adequately characterized prior to transport.
3. The application does not provide adequate discussion of "process knowledge" relative to Group I wastes. Provide a more detailed discussion of "process knowledge" for Group I wastes and all associated Waste Categories. Provide applicable flow diagrams, summary chemical analyses tables from past sampling activities, and more detailed process discussions. It is NMED's understanding that each drum of Group I waste will undergo real-time radiography, then each drum will be opened and undergo detailed physical examination and categorization prior to repackaging within the dry bins. Provide detailed discussion of this within the application, specifically discussing the verification/visual identification process and state whether this process is intended for all Group I waste intended for inclusion within bins destined to WIPP during the Test Phase. If real-time radiography is ever intended to be the only source of waste characterization for Group I wastes during the bin-scale tests, clearly indicate this within the application and provide all available information concerning accuracy/reliability of real-time radiography including reports, training programs, etc.

4. "Process knowledge" discussions for Group II or III wastes must be significantly improved. Provide a detailed discussion of "process knowledge" for each Waste Category within Groups II and III, including specific processes "lines" within each waste category. Include applicable flow diagrams, summary chemical analyses tables (see General Comment No.8), and more detailed waste process generation discussions. DOE/Westinghouse has assembled this information in other documents, including the No Migration Variance Petition. It is appropriate to cross reference this and other documents, but the application itself must include all required information to demonstrate achievement of a clear and concise understanding of the processes associated with current and past waste generation of Test Phase Group II and III wastes. Chemical analyses and subsequent statistical evaluation of the data is intended for limited number of drums to characterize Group II and III wastes. The proposed statistical analysis cannot be assessed until the application includes significantly more process knowledge information for Waste Categories within Groups II and III. As written, the application does not provide sufficient information to justify the proposed statistical sampling program. Without demonstration of appropriate waste characterization, every drum of Group II and III wastes intended for shipment to WIPP under the Test Phase must undergo chemical analyses prior to emplacement in bins.
5. Table C-1 and other references within the text (i.e., page C-4) indicate that the Part A application includes waste codes which will not be accepted during the Test Phase, such as 2,4 D (D016). Revise the Part A and Chapter C text to include only those waste codes applicable to the Test Phase. Specifically indicate whether all Waste Categories listed within the application will be included in the Test Phase, and submit modifications to the Part A and all other applicable sections of the application (Chapter C), should the intent be to not include all of the Waste Categories within the Test Phase.

6. The application as a whole neglects to discuss waste management, should retrieval of bins be required following the Test Phase. Discuss intended chemical analyses of bin material that will be performed should retrieval and offsite shipment of the bins be required, and modify other applicable chapters of the application to address post-Test Phase bin management. Specifically address waste characterization relative to Test Phase-generated mixed waste, and forward reference applicable sections dealing with waste management during retrieval. The application indicates that any release of radioactive constituents will assume to be accompanied by hazardous waste, and will thus constitute a release of mixed waste. However, the application does not describe how releases of hazardous constituents without accompanying radioactive components will be detected and managed. Provide this information.

7. Numerous documents are referenced by name only within Chapter C, and the contents of these documents and applicability to Chapter C are not stated. While it is appropriate to reference detailed technical documents, referencing of other documents should be limited to the extent possible. Provide summaries of the actual information contained in the referenced documents within Chapter C, and include the appropriate detail so that the reader may acquire a firm understanding of information, results and conclusions contained within the referenced documents. The references to the documents cited in Chapter C must be revised to include, as appropriate, the volume, chapter, section and page number of the referenced material. Further, modify the application so that all referenced documents are applicable to the application. Each document referenced within the application is subject to critical analysis during the application review process and if these documents are not accurate, then inappropriate conclusions will be drawn, thus hampering the review process. Also, documents referenced within the application contain additional references to other supporting material, indicating that more than the "one tier" reference is intended. Address these concerns.
8. Chemical analytical data are presented within other documents referenced by the application. While it is appropriate to cross reference these studies for specific data/detailed information, the application must include summaries of available analytical data specific to waste categories presented within the application. For example, a summary table showing gas generation, EP toxicity, and TCLP analysis should be prepared and included to support the above General Comment Nos. 3 and 4. Provide, as applicable, referenced analytical data in summary tables.

9. The recordkeeping protocols and procedures for shipment of waste to WIPP are not sufficiently detailed. Provide more detailed discussion of required recordkeeping, including that required for Phase I waste shipment screening and verification. Specifically, provide more discussion of the WIPP Waste Information System, summarizing elements of this system which support recordkeeping relative to the Test Phase.

10. The application references many facility-specific Standard Operating Procedures that contain waste sampling and analytical procedures for the Test Phase. These procedures must be summarized within the application in applicable sections (i.e., discuss facility waste sampling procedures under this section). Reference and briefly discuss all applicable Standard Operating Procedures within the application.

Provide sampling and analysis plans for sites intending to ship bins to WIPP during the Test Phase, and summarize the plans within the application. Provide lists of analytical parameters established, sampling protocols, etc., including probability and error bar analysis. Compare the site-specific sampling and analysis plan/information with that presented in the application, clearly stating where any differences occur. Alternately, indicate whether these sampling and analysis plans are parallel to the procedures set forth in the application.
SPECIFIC COMMENTS

C. WASTE CHARACTERISTICS: 270.32(b)(2); 264.73

C-1 Chemical and Physical Analyses: 264.13(a); 264.73; 270.14(b)

Indicate the maximum volume of transuranic waste intended for bin-scale testing during the Test Phase.

Page C-2, Lines 16 through 18

Provide a clear explanation of the "resulting data," as well as the criteria for "accuracy," and "completeness" discussed in these lines of the application. Alternatively, forward reference to portions of the application which addresses these topics.

Page C-2, Lines 20 through 35, and Lines 39 through 41

The application must introduce and briefly discuss the Test Phase in Section C-1, including the types of tests which will be performed within each container. For example, introduce the humidity tests and forward reference to other sections of the application where these tests may be discussed more thoroughly. In section C-1a, the application must discuss the specific types of bin containers to be used during the Test Phase.

Page C-8, Line 14

Provide a clearer explanation of the selection criteria for the "parameters of interest".

Pages C-8 Lines 20 through 22

Provide rationale and justification for classifying the wastes into the designated Waste Categories.
Provide significantly more information concerning "process knowledge" for each Waste Category (see General Comments Nos. 2 and 3), including specific "process lines" within each Waste Category and justification that process knowledge and written records are sufficient to determine the appropriate Waste Category for each waste. Include more waste category-specific process knowledge such as flow diagrams, all available chemical analytical data, and detailed waste generation/process descriptions. Reference and summarize additional documentation as appropriate. Provide this information for all Waste Categories and Groups, and in specific those Waste Categories included in Groups II and III.

For each of the 17 Waste Categories, provide a listing of the waste constituents and a summary table presenting constituents and their concentrations (if applicable, concentrations may be expressed in ranges) based on process knowledge and previous analytical results (See General Comment No. 5). Provide documentation of the process knowledge and analytical results used to create these listings. Provide justification that the process knowledge, previous sampling methods, analytical methods, and analytical results used are sufficient resources to create a valid and complete listing. Also include as part of additional process information, any MSDS, manufacturer's data, etc. which could be applicable to defining the specific hazardous wastes within the waste categories. For example, specifically state which metals constitute the "metal impurities" that may be present in pyrochemical salt. Indicate whether all of the Waste Categories will be utilized during the Test Phase.

Provide documentation that all of the chemicals presented in Table C-1 and their associated EPA waste codes are applicable to all of the Waste Categories. Provide summary table presenting each Waste Category and their associated chemicals and EPA waste codes (see General Comment No. 5). Furnish a cross-reference table showing how specific Waste Groups, Waste Categories, Levels, Item Description Codes, Content Codes, Waste Types, and other waste designator/divisions, are interrelated. Focus upon the Waste Categories and Waste Groups cited within the application, and provide examples of specific Item Description Codes, Content Codes, Levels, and other designators included in specific Waste Categories. Specifically, show the Waste Categories which may be included within High-organic/newly generated wastes, High-organic/old wastes, Low-organic/newly generated wastes, and inorganic process sludge wastes. The application
references numerous documents which use different waste
designators and it is not possible to understand how these
designators relate to those in the application without a
cross-reference table.

Include a more comprehensive discussion of compatibility
studies performed for WIPP waste and provide compatibility
tables showing the results of previous compatibility
analyses. Discuss how Item Description Codes and/or
Content Codes which may be shown on this table relate to
Waste Categories identified in the application. Reference
applicable documentation in which more comprehensive
discussions of waste compatibility are included, and
forward reference applicable portions of the application
if appropriate.

Table C-1

Table C-1 indicates that numerous hazardous waste listed
within this table, and subsequently within the Part A
application, are not used at the generator sites and are
not "present in the waste." Discuss why these waste codes
were included in this table and within the Part A
application, and modify both to include only those
hazardous constituents present within wastestreams managed
during the Test Phase.

Containerized Wastes: 264.17(b) and (c); 264.73; 264.172
and 264.177 Comment after (b)

Provide documentation of waste-to-bin compatibility,
including procedures (i.e., operational, analytical,
recordkeeping) to ensure that waste-to-bin incompatibility
does not occur. Alternatively, forward reference to those
sections of the application which address this concern.

Page C-13, Line 35

If real-time radiography is intended to provide the only
source of waste characterization for this and any other
Waste Category, indicate this specifically within
applicable portions of the application. Provide a more
detailed explanation of real-time radiography and of its
applications for the Test Phase specific to determination
of liquids within test containers. Detail real-time
radiography procedures and accuracy, and how it will be
used to assess Groups I, II, and III wastes.

Page C-14, Lines 4 and 5

State specifically the process associated with repackaging
55-gallon drums into the 35-gallon drums prior to super-
compaction at Rocky Flats Plant. State whether the wastes are carefully examined (physically), logged, weighed, etc., prior to super-compaction. Clarify whether each "puck" will constitute a specific waste category or mixture of waste categories, and indicate how any physical waste characterization data derived from this activity is carried through the WIPP waste tracking/manifest system.

Page C-17, Lines 1 through 30

Should removal of wastes from the subsurface be required, management of the Test Phase bins must be addressed. Should DOE/Westinghouse elect to conduct wet-bin tests, how will these bins be managed in the post-Test Phase period, considering that injected brine may be considered a Test-Phase "derived" mixed waste? Present specifically how this waste will be managed, forward referencing to any applicable portion of the application where management of these wastes is discussed more thoroughly. Also discuss any waste management procedures that may occur in association with decontamination activities, including solidification of wastewater, and present "chemically compatible" materials which may be used during decontamination.

Page C-19, Lines 11, 12 and 17

Provide clarification of and definitions for the following terms: "reasonably achievable;" "well-drained;" and "residual."

Waste Analysis Plan: 264.13 (b) and (c); 264.73; 270.14(b)(3)

Provide justification for not addressing sample spikes. Also justify why no inorganic parameters and test methods are included in referenced documents, such as the Quality Assurance Program Plan for WIPP Experimental Waste Characterization Program and WIPP Waste Characterization Program Sampling and Analysis Guidance Manual.

Page C-17, Lines 28 through 31

This statement indicates that some waste characterization requirements have yet to be developed. The Waste Analysis Plan cannot refer to future protocols as protocols which have not yet been developed cannot be approved during the permitting process. Either revise the Waste Analysis Plan by deleting the future protocol reference, or by providing a general protocol for off-normal activities or accidents.
Provide a clearer definition of "process tolerance limits".

Page C-38 and Figure C-3

The Waste Profile Form presented in Figure C-3 must provide room for analytical results (i.e., constituents, concentrations). Also, modification and expansion of the forms to be Test Phase-specific is required. For example, line 6a of the form should provide instructions for a "no" response and item 7 should specify the "data report." Revise the sampling portions of the Waste Profile Form to be consistent with any changes to the sampling sections of the Waste Analysis Plan required as a result of these comments. On Page C-38, add another bullet stating the Waste Profile Form will include analytical results (i.e., constituents, concentrations).

Page C-38, Lines 36 through 40

The application describes the steps to be taken if Waste Profile Form discrepancies are found, but it does not describe the steps to be taken if discrepancies are not found. Revise the application accordingly to include those steps that must be followed if discrepancies are not found.

Pages C-40 through C-46

Numerous Standard Operating Procedures are briefly mentioned within the application, but no summaries concerning the content or applicability of these Standard Operating Procedures to the Test Phase (in text or tabular form) are provided (see General Comment Nos. 7 and 10). Provide this information.

Page C-43, Line 3

Provide a summary discussion of the Waste Acceptance Criteria Certification Committee, including participants, roles, and responsibilities relative to the Test Phase. Reference those documents containing more detailed information concerning the Committee.
Parameters and Rationale: 264.13(b)(1); 264.73

Page C-20, Lines 3 through 16

Clarify what is meant by "analytical requirements." Reword line 11 to indicate that the waste category is "assigned" by the generator site rather than "determined" by the site, as WIPP has determined the Waste Categories, not the generators. Provide rationale and criteria for selection of analytical requirements which are "determined by Waste Category." Also explain the role of real-time radiography in Waste Category verification.

Page C-22, Lines 38 through 40

Provide the specific Waste Categories included in each Group. Also provide clarification of the rationale used to determine these groupings.

Page C-24, Lines 19 through 29

Provide documentation that each waste listed on the Part A will fall into one of the Waste Categories (see comment C-1). Also provide details concerning "waste verification information."

Discuss the mechanism (i.e., recordkeeping) and certification for the transmittal of data from the generator to the WIPP facility, forward referencing as applicable. Provide more detailed discussion of the "applicable supporting data."

Pages C-24 through C-27, and Tables C-9, C-10 and C-11

The information presented in the application concerning "processes knowledge" relative to waste generation is not sufficient, particularly for Group II and III wastes. Unless sufficient process information can be provided to support the proposed statistical analyses, the application with require revision to state that all Group II and III waste intended for shipment to WIPP during the Test Phase will be sampled and analyzed for RCRA constituents to ensure proper waste characterization (see Comment No. C-2e). Provide additional process information.

Page C-25, Lines 18 through 23

Provide details on Group I data reporting, and the mechanism (i.e., recordkeeping) by which this headspace
gas data will be provided to the WIPP facility and NMED to ensure proper acceptance or rejection of the waste.

Page C-26, Lines 13 and 14, and Lines 21 through 25

Provide details on Group II data reporting, and the mechanism (i.e., recordkeeping) by which this headspace gas data will be provided to the WIPP facility and NMED to ensure proper acceptance or rejection of the waste.

Page C-26, Lines 40 and 41; Page C-27, Lines 1 through 2

Provide details on Group III data reporting and the mechanism (i.e., recordkeeping) by which this headspace gas data will be provided to the WIPP facility and NMED to ensure proper acceptance or rejection of the waste.

C-2b

Test Methods: 264.13(b)(2)

Page C-22, Lines 5 through 15

The facility proposes to use total constituent analyses rather than Toxicity Characteristic Leaching Procedure (TCLP) and associated analysis for hazardous constituents listed on Table C-1. Provide supporting documentation concerning the contention that the total concentration values with 20 fold dilution will be equivalent to TCLP results. Also, specifically indicate why TCLP was not proposed. Unless DOE/Westinghouse can provide definitive proof that the suggested alternative analysis is an adequate substitute for TCLP, analysis utilizing TCLP will be required.

Page C-22, Lines 22 through 34

The application indicates that some test methods are currently being evaluated. Provide the specific methods which are being evaluated, and the evaluation criteria.

The application also indicates that some methods/protocols/procedures are yet to be developed which will be needed to demonstrate equivalency. The Waste Analysis Plan cannot refer to current or future methods/protocols/procedures which have not demonstrated equivalency. Revise the Waste Analysis Plan by deleting the method/protocols/procedures equivalency references, or demonstrate method/protocols/procedures equivalency.

Clarify the implication within the application that the differences in the hazardous chemicals do not justify
establishing generator-specific waste analysis requirements.

Page C-43, Lines 16 and 17

Provide documentation that the analytical method modifications are equivalent to, or have been approved by NMED. Also, describe the modifications in great detail and demonstrate that the original method's data quality objectives have not been compromised.

\[C-2c\]

**Sampling Methods:** 264.13(b)(3); 261, Appendix I

A significant quantity of additional information relative to Group I bin packaging is required to ensure that representative "sampling" and analyses is performed (see General Comment No. 3). Provide this information. Also indicate whether alternative sampling methods have been considered for methods 1 and 2, and discuss these alternatives.

Page C-22, Lines 25 through 26

The protocols for sampling solidified/stabilized waste forms must be established and appropriately discussed/referenced within this application. Provide this information.

Page C-27, Lines 6 through 10

Provide details on the "waste verification program" and the "waste verification requirements."

Page C-27, Lines 32 through 37

The application indicates that some sampling protocols are being developed, and other protocols/procedures/guidance will be developed in the future. The Waste Analysis Plan cannot refer to future protocols/procedures/guidance, and future protocols/procedures/guidance cannot be approved during the permitting process. Revise the Waste Analysis Plan by deleting these references, or provide the protocols/procedures/guidance which are referenced.

Page C-28, Lines 4 through 6

Provide details on the term "substantially uniform."
Provide documentation that the sampling method modifications are equivalent to, or have been approved by, the NMED or EPA.

C-2d **Frequency of Analyses:** 264.13(b)(4)

The application does not provide adequate process knowledge information to allow for evaluation of the statistical procedures presented to determine analytical frequency. As indicated previously, the statistical analysis must be based upon a better understanding of the processes knowledge so that the homogeneity (or lack thereof) of the proposed population can be assessed. Unless the this demonstration can be made, each drum of Group II or III waste destined for placement within a bin for testing must undergo chemical analysis for RCRA constituents.

C-2e **Additional Requirements for Wastes Generated Off-Site:** 264.13(b)(5) and (c); 264.73(a) and (b)

The specific mechanism for placing Group II and III wastes in bins following chemical analyses is not provided. Also, detail is required concerning Group bin packaging and physical waste analyses (see General Comment No.3). Provide this information.

Page C-18, Lines 9 through 20

Provide or appropriately reference procedures (i.e., operational, analytical, recordkeeping) to ensure wastes unacceptable for management at the WIPP facility are tracked and excluded from shipment to WIPP.

Page C-20, Line 10

Provide procedures (i.e., operational, analytical, recordkeeping) to ensure that the WIPP facility will accept only the Waste Categories listed in the application.

Page C-20, Lines 39 through 40; and Page C-21, Lines 14 through 17

Provide or appropriately reference procedures (i.e., operational, analytical, recordkeeping) for the headspace VOCs concentration and flammability potential determination, data transmittal and data verification.
Provide or appropriately reference procedures (i.e., operational, recordkeeping) to ensure wastes that exceed the boundary conditions for headspace VOC concentrations and flammable gases will not be accepted at the WIPP facility. EPA has generated boundary conditions relative to waste shipment concerning VOC concentrations and flammability of wastes. However, it is unclear within the application whether these boundary conditions apply to waste prior to shipment or prior to waste acceptance at WIPP. If the conditions apply to pre-shipment, discuss the specific gas generation (i.e., VOC, flammability) changes anticipated during transport of the material, and provide assurances that these boundary conditions will also be met when the waste reaches the WIPP facility (will not change during transport).

List the specific waste categories which are included in each Group (see Comment No. C-2a). Is Group III intended to represent potential waste mixtures to be prepared for the Test Phase, or does it include mixtures of waste codes that were performed by generator sites during previous operational periods? Clarify this. Also indicate whether all Groups and Waste Categories will be included in the bin-scale tests.

Clarify what is meant by packaging of wastes within the "same waste container." Does reference indicate that wastes will be packaged within the same bin or within the same TRUPACT?

Clarify whether the frequency of headspace sampling is consistent with that required under the NMVP. Also specifically state the methodology used to determine additional headspace samples will be collected beyond the recommended frequency within the application. Provide the sampling protocols for Group II and Group III wastes to ensure collection of representative samples.

Provide additional information concerning the "waste container populations," including the specific wastes
within these populations and how they relate to Waste Categories.

Clarify those facilities from which DOE/Westinghouse intends to receive waste from for the Test Phase. Indicate the estimated likely maximum quantity of Group I, II and III wastes which will be transported to WIPP during the Test Phase.

Page C-31, Lines 9 through 10

Specify whether any solidified matrix is anticipated surrounding the inner containers, and whether sampling of this matrix will be performed.

Page C-36, Lines 6 through 18, Lines 28 through 31, and Lines 34 through 36

Provide procedures (i.e., recordkeeping) to ensure that the Phase I Waste Shipment Screening and Verification process occurs as described.

The process tolerance limit/boundary conditions discussed in this section are but a few of those which affect waste acceptance at WIPP. Indicate this within this section, and reference applicable documentation for additional process tolerance limits/boundary conditions applicable to WIPP. Clarify whether real-time radiography records include the videotaped assessment of each drum, and state whether these records will accompany bins containing material from the drums which were examined using real-time radiography. It is also apparent from Figure C-2 and discussion within the application (page C-35) that the verification of process limits/boundary conditions and waste profile forms is only part of the evaluation process for accepting waste at WIPP. However, page C-36, lines 34 through 36 imply that these are the only criteria. Modify the application to indicate that additional criteria are examined.

Page C-37, Lines 1 through 13

The application indicates within this and other sections that following verification Phase I requirements, waste may be accepted at WIPP. However, Phase II criteria must also be met before waste is accepted, and Phase I requirements only assure that the waste is sufficiently characterized for transport. Further, NMED may include additional criteria as part of the permitting process. Clarify this within the application.
Pages C-38 through C-41; and Tables C-14 and C-15

The various forms and procedures referenced on these pages are being verified by Westinghouse for completeness. However, they should also be verified for accuracy. Revise the application accordingly.

Page C-40, Lines 14 through 27

Provide more detailed information on the WIPP Waste Information System and include additional references as necessary. Also, provide applicable sections of a WIPP Waste Information System database report and a generalized summary of what these reports contain. By adding manifest information and analytical results to the WIPP Waste Information System, the WIPP facility would have a comprehensive reference database to assist with waste management and recordkeeping requirements.

Page C-41, Lines 34 through 36

Reference the specific Standard Operating Procedures which describe the visual inspection procedures for waste shipments, and summarize information contained within the Standard Operating Procedure(s) pertinent to physical waste characterization/waste inspection procedures for the Test Phase.

Page C-42, Lines 1 through 40

Specify that decontamination procedures can and will be performed if releases are detected. Specifically address the waste generated as part of the decontamination procedures (including the worst-case scenario of releases to the drain system, requiring solidification of released waste) how resulting waste (presumed to be mixed) will be characterized, and specific decontamination procedures. Forward reference to Section D or other section as applicable.

Page C-43, Lines 22 through 36

Provide details on the "waste characterization data reports," "raw data," and "documentation of all required QA/QC activities." Also, provide examples of these forms. Include a detailed explanation of the data quality objectives, and provide a copy of the laboratories Quality Assurance Program Plan(s).

Provide more detailed information (i.e., protocol, criteria) for "integrity," "data validation," and "data
verification" with respect to waste characterization. Data validation, as explained in the referenced Quality Assurance Program Plan, does not follow EPA's Functional Guidelines for organic and inorganic data validation.

Page C-44, Lines 3 through 37

Provide more detailed discussion concerning what the "waste characterization data" and associate "documents" includes. Also, provide examples of these forms.

Also provide more detailed information concerning "waste shipment screening data" and the "data generation QA/QC requirements;" include examples of these forms. Discuss "waste shipment screening data reports," "protocols," "information documents," and "waste shipment data" more thoroughly, and provide examples of these forms.

Page C-45, Lines 4, 10, and 16 through 18

Provide details (i.e., protocols, criteria) on "waste shipment screening data verification," "completeness," and "irregularities."

Figure C-1

Figure C-1 is much too general. Modify this figure to include a detailed waste packaging flow diagram from the point where drums are selected for emptying/inclusion within the bin test program, integration of real-time radiography, and any physical waste characterization that may occur before headspace sampling. Provide more detailed information concerning specific boundary conditions to be met upon the diagram.

C-2f Additional Requirements for Ignitable, Reactive or Incompatible Wastes: 264.17 and 23(b)(6); 264.177

Page C-8, Line 20; and Page 19, Lines 28 through 40

Provide documentation that the materials within a Waste Category are chemically compatible (see General Comment No. 8).

Page C-18, Lines 30 through 32

Provide justification that the administrative and operational procedures are sufficient to ensure that waste received at the WIPP facility will not exhibit the characteristics of ignitability, reactivity and corrosivity. Alternatively, forward reference to
appropriate sections of the application which indicate that the administrative and operational procedures are sufficient to ensure that these waste characteristics are not apparent.

Page C-19, Lines 31 through 32

Provide documentation that EPA concurs with DOE's compatibility determination and include references.

C-3f(2) **Exemption From a Prohibition:** 268.6

Land disposal restrictions do not apply to storage facilities such as the Test Phase WIPP. Clarify this within the Waste Analysis Plan.
GENERAL SUMMARY OF CHAPTER C DEFICIENCIES

The application does not focus on waste characterization activities specific to the Test Phase, and appears to include extraneous information not applicable to the Test Phase. Clarify the exact scope of the test phase focusing on proposed waste analysis relative to bin and alcove-scale tests.

The application provides only generalized discussion of process knowledge, and information included is not sufficiently detailed. The application must describe all waste characterization activities performed at the generator site including any physical waste analysis associated with preparation of the bins. Specifically, the application must provide a clear understanding of waste characterization performed, from performance of RTR, to bin packaging, bin sealing/headspace gas analyses, transport, and emplacement of the bins. Available chemical analyses must also be provided. The applicant must substantiate to NMED that the waste characterization process is capable of specifically characterizing wastes in individual containers.

The proposed statistical analyses and associated process knowledge discussion for Group II and III wastes are not sufficiently detailed to allow adequate evaluation. As written, the application implies that some drums will be sampled and chemically/statistically analyzed, and the statistics will be used to "estimate waste population parameters" (define statistically the composition of Waste Categories). The application also implies that once a population is "defined", no additional statistical or chemical analyses will be performed, and waste will then be shipped to WIPP during the Test Phase without any verification sampling. Unless DOE can adequately demonstrate that process knowledge sufficiently characterizes Group II and III wastes, each drum of Group II and III wastes emptied into bins and shipped to WIPP during the Test Phase must undergo chemical analyses. The application does not provide adequate information to support this demonstration.

The application does not provide sufficient cross referencing tables or supporting information (i.e. flow diagrams, summary data tables,). Numerous documents are referenced in the application without benefit of summary discussion of the reference's contents or applicability. The application also indicates that numerous hazardous wastes listed in the Part A application and on an included table are not part of the Test Phase waste stream. Recordkeeping protocols and procedures require additional detail. The application must also identify the specific hazardous wastes included in each Waste Category, and provide additional chemical analytical data relative to the Waste Categories.
NMED must be provided assurance through waste characterization methods that individual waste containers hold specific wastes at specific quantities in specific forms. The applicant needs to define wastes by using mutually agreed upon terminology.