STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE FINAL PERMIT
ISSUED TO THE UNITED STATES
DEPARTMENT OF ENERGY AND
WESTINGHOUSE ELECTRIC COMPANY
WASTE ISOLATION DIVISION FOR
A HAZARDOUS WASTE ACT PERMIT FOR
THE WASTE ISOLATION PILOT PLANT,
EPA No. NM489013908

NEW MEXICO ENVIRONMENT DEPARTMENT'S
PROPOSED FINDINGS OF FACT AND
CONCLUSIONS OF LAW

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NEW MEXICO ENVIRONMENT DEPARTMENT'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

Pursuant to 20 NMAC:1.4.501., the New Mexico Environment Department (NMED) submits the following proposed findings of fact and conclusions of law:

I. ADMINISTRATIVE AND REGULATORY BACKGROUND

A. FINDINGS OF FACT

1. The State of New Mexico is authorized by the United States Environmental Protection Agency (USEPA) to issue and enforce permits for the treatment, storage and disposal of hazardous wastes within the State pursuant to criteria established under the Resource

2. Under the New Mexico Hazardous Waste Act (HWA), the Environmental Improvement Board (EIB) is directed to adopt regulations requiring each owner and operator of both of an existing facility or new facility for the treatment, storage, or disposal of hazardous wastes to have a permit issued pursuant to the requirements established by the Board. NMSA 1978 §§ 74-4-4(A)(6) and 74-1-8(A)(13)(Repl. Pamp. 1993).

3. The HWA requires that all permits issued on or after April 8, 1987 shall contain corrective action requirements for releases of hazardous wastes or constituents from a solid waste management unit (SWMU), regardless of when the waste was placed in the SWMU as necessary to protect human health and the environment. NMSA 1978, §§ 74-4-4.A.5h and 74-4-4.2.B (Repl. Pamp. 1993).

4. NMED's predecessor agency, the Environmental Improvement Division (EID), adopted the following sections of the federal code of regulations under which it administers its hazardous waste treatment, storage, or disposal facility permitting program, including corrective action: 40 CFR Parts 260 - 266, 268, 270, and 273 with exceptions as stated in 20 NMAC 4.1.101 through .1001.
5. NMED by and through its Secretary is responsible for administering, implementing and enforcing regulations promulgated by the EIB regarding the management, treatment, storage or disposal of hazardous wastes in New Mexico. NMSA 1978, § 74-1-7(13), (Repl. Pamp. 1993).

6. The WIPP facility is a geologic repository located in southeastern New Mexico, approximately 26 miles east of the City of Carlsbad, New Mexico. Record Proper (RP) Number No. 1 (Fact Sheet, November 13, 1998, page 1) and Permit Application, Chapter G, page G-1, line 31+ (Administrative Record (AR) No. X).

7. On August 27, 1990, NMED required the United States Department of Energy (DOE) to submit a Part B permit application for the management of mixed transuranic wastes at WIPP as required under the HWA and RCRA at 20 NMAC 4.1.900 (incorporating 40 CFR § 270.1(b)). Record Proper No. 14, NMED Supplemental Fact Sheet, December 8, 1998 and RP, NMED’s Exhibit A (Statutory and Regulatory Background), Attachment 2.

8. The DOE, an agency of the federal government, and the Waste Isolation Division of the CBS/Westinghouse corporation (WID), a private corporation, submitted a Part A permit application for the management of mixed transuranic wastes on January 22, 1991 and a Part B permit application on February 26, 1991. RP, NMED Exhibit A (Statutory and Regulatory Background), Attachment 2.

1 The fact sheet is also identified in the Administrative Record (AR) as No. 981135.

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Regulatory Background), Attachments 3 and 4. These permit applications are referred to as the WIPP "Test Phase" application. Id. at pg. 4.

9. Under the permit application, the DOE is the owner and operator of WIPP; WID is the co-operator of WIPP (herein referred to as Applicants). Permit Application (Part A Application, Pg A-9) (AR No. X). See also RP, NMED’s Exhibit A (Statutory and Regulatory Background), Attachments 3 and 4.

10. On August 30, 1993, NMED issued a draft permit to accept public comment for WIPP’s Test Phase application. RP, NMED’s Exhibit A (Statutory and Regulatory Background), Attachments 5, 6, 7, and 8.

11. On October 21, 1993, the Applicants announced that the “tests involving radioactive wastes will not be conducted at WIPP.” RP, NMED’s Exhibit A (Statutory and Regulatory Background), Attachment 9 and AR No. 940904.

12. On September 2, 1994, NMED issued an order to the Applicants requiring them to submit a revised permit application for future activities at WIPP and remanding the Test Phase draft permit to the Hazardous and Radioactive Materials Bureau (HRMB). RP, NMED’s Exhibit A (Statutory and Regulatory Background), pg. 4 and AR No. 940904.
13. On May 26, 1995, the Applicants submitted a revised permit application (Revision 5.0) to NMED to manage, store and dispose transuranic mixed waste at the WIPP facility. RP, NMED's Exhibit A (Statutory and Regulatory Background), pg. 5, AR No. J, AR No. 950518.

14. Under the revised permit application, the DOE is the owner and operator of WIPP; WID is the co-operator of WIPP. RP, No. 5, Permit Application, Part A Application, Pg A-9 (AR) No. X. See also RP, NMED's Exhibit A (Statutory and Regulatory Background), Attachments 3 and 4.

15. On June 20, 1995, NMED issued an order determining that all of the requirements of the September 2, 1994 order were met. RP, NMED's Exhibit A (Statutory and Regulatory Background), pg. 5 and AR No. 950611.

16. 40 CFR §124.32(a) and (b) requires that an application for a HWA Permit be public noticed according to certain minimum requirements.

17. On June 15, 1995, NMED issued a public notice in a newspaper of general circulation of the Department's receipt of Applicants' revised permit application. RP, NMED's Exhibit A (Statutory and Regulatory Background), pg. 5; AR No. 950608.

18. The public notice contained a description of the application; the date the application was
submitted; the name and telephone number of the Applicants' contact persons; the name, telephone number and address of the NMED's permit contact, including the agency's mailing address for all information requests; and the location where copies of the application may be reviewed. AR Nos. 950608, 950609. 40 CFR §124.32(b)).

19. The public notice was mailed to all persons on NMED's mailing list, affected local, state and federal governmental agencies. AR Nos. 950608, 950609. 40 CFR §124.32(b)(1)).

20. Under the HWA, each permit application must be complete and is required to contain all necessary information required by Section 74-4-4.7 of the HWA or information required by regulation under 20 NMAC 4.1. et seq. NMSA 1978, § 74-4-4.2 (Repl. Pamp. 1993).

21. An application is complete when NMED receives an application form and supplemental information which are completed to the Director's satisfaction. 20 NMAC 4.1.900 (incorporating 40 CFR §270.10(c)).

22. Section 74-4-4.7 of the HWA requires that every permit applicant file a disclosure statement at the same time the applicant files the application for a permit.

23. NMED requires that Applicants provide the agency a permit application that contains all
general information requirements set forth under in 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14) and specific information requirements for miscellaneous units set forth in 20 NMAC 4.1.900 (incorporating 40 CFR § 270.23). 40 CFR § 270.10(c) and (d).

24. NMED may determine that a permit application contains technical and administrative deficiencies, and may request of the applicant information to remedy those deficiencies. NMSA 1978, §§ 74-4-4(6) and (7)(Repl. Pamp. 1993) and 20 NMAC 4.1.901(a).

25. Once an application is determined to be administratively and technically complete, the Secretary shall prepare and issue a Draft Permit or Notice of Intent to Deny. 20 NMAC 4.1.901.A.

26. An application may be deemed administratively and technically complete, but still be technically inadequate. Transcript (TR), NMED Witness Steve Zappe at pg. 2375.

27. In November of 1995, NMED determined that Permit Revision 5.0 of the application contained technical deficiencies and issued three requests for information to remedy those defects. RP, NMED's Exhibit A (Statutory and Regulatory Background) pg. 5, and AR Nos. 951101, 951110 and 951121.
28. The Applicants responded to these information requests by the submittal of Permit Revision 5.2 of the permit application. AR Nos. 951202, 951207, 951214, 951224, 951225 and 960106.

29. On March 14, 1996, NMED issued a Notice of Deficiency (NOD) regarding technical deficiencies in Permit Revision 5.2. RP, NMED's Exhibit A (Statutory and Regulatory Background) pp. 6-7 and AR No. 960308.

30. The Applicants responded to the March 14, 1996 NOD with the submittal of Permit Revision 6.0 of the permit application and the Final Shaft Seal Report. Id. at 6. AR Nos. 960413 and 960914.

31. On July 25, 1995, NMED found that the permit application contained all of the necessary sections to be found administratively complete. RP, NMED's Exhibit A (Statutory and Regulatory Background) at pg. 8 and AR No. 950710.

32. On June 27, 1996, NMED found the permit application (Permit Revision 6.0) to be technically complete. RP, NMED's Exhibit A (Statutory and Regulatory Background) at pg. 8 and TR, S. Zappe at pg. 2377.

33. Permit Revision No. 6.0, although technically complete, was inadequate for many of the same reasons NMED had previously specified in its March 14, 1996 NOD. NMED
determined that these deficiencies could be remedied by permit conditions. TR, S.Zappe at pg. 2377.

34. After an application is deemed complete, there are limited circumstances in which new information may be submitted: (1) only when the NMED requests additional information from an applicant; and (2) only when needed to clarify, modify or supplement previously supplied information. These requests will not render the application incomplete. 40 CFR § 124.3(c). See also TR, S. Zappe at pp. 2380-81.

35. Between April 12, 1996 and November 20, 1997, the Applicants provided NMED Permit Revisions 6.1 through 6.5 and other technical documents which contained approximately 11,000 pages of additional information to the application for NMED's review. RP, NMED's Exhibit A (Statutory and Regulatory Background), Attachments 11 and 12.

36. Between March 21, 1997 and July 28, 1997, the Applicants provided for NMED's review substantial material as revisions to the permit application including Permit Revision Nos. 6.2, 6.3 and 6.4 of the permit application for NMED's review. Id. at pp. 7-8. AR Nos. 970310, 970514, 970607, 970713, 970714, and 970715.

38. Applicants' submittal of Permit Revision No. 6.3 contained material not requested by NMED. See AR No. 970939 and RP, NMED's Exhibit A (Statutory and Regulatory Background) at pg. 7.

39. The Applicants' submittal of Permit Revision 6.4 (revised ground water monitoring plan) contained included significant amounts of new information which was not submitted as part of the permit application such as monitoring frequencies, analytical parameters and sampling documentation. AR No. 970939 and TR, S. Zappe at pg. 2379.

40. WID did not submit a disclosure statement at the same time the application was filed with NMED. AR Nos. 970421, 970939, and TR, S. Zappe at pg. 2380.

41. On September 26, 1997, NMED informed the Applicants that the application was incomplete due to several reasons: (1) NMED received substantial amount of permit revisions and material that were not supplied upon request by the agency; (2) WID had failed to submit a disclosure statement at the time the application was submitted as required under the HWA; and (3) WID had failed to provide financial assurance information as required under the HWA and regulations. NMED informed Applicants that some of the information was new and not submitted to clarify, modify or supplement previously submitted information. AR No. 970939. See also RP NMED's Exhibit A (Statutory and Regulatory Background) pg. 7 and TR, S. Zappe at pp. 2380-81.
42. On January 5, 1998, NMED issued a new completeness determination after concluding that the Applicants submitted all necessary information requirements under the HWA and regulations to the satisfaction of the agency. AR No. 980102. RP, NMED's Exhibit A (Statutory and Regulatory Background) pg. 8 and TR, S.Zappe at pp. 2381.

43. Once an application is determined to be administratively and technically complete, the Secretary shall prepare a Draft Permit that contains all conditions, monitoring requirements and technical standards for treatment, storage and/or disposal provided for in 40 CFR Part 270. 20 NMAC 4.1.901.A.

44. On May 15, 1998, NMED published a public notice announcing the availability of a Draft Permit and Fact Sheet for WIPP and a public comment period of ninety (90) days including requests for hearing as required under 20 NMAC 4.1.901.A.3. AR No. 980542 and RP, NMED's Exhibit A (Statutory and Regulatory Background) at pg. 8.

45. NMED's public notice was published in the Albuquerque Journal, a newspaper of general circulation, and newspapers in Santa Fe, Carlsbad, Hobbs, Las Cruces and Roswell as required under 20 NMAC 4.1.901.A.3. and .901.C.1. RP, NMED's Exhibit A (Statutory and Regulatory Background) pg. 8 and AR Nos. 980506 -980516.

46. On May 15, 1998, NMED mailed a copy of the Draft Permit and announced availability of the Fact Sheet to the following: the Applicants, the USEPA, approximately 1100
individuals upon NMED's WIPP mailing list, which includes those persons who requested notification as required under 20 NMAC 901.A.2 and .3 and 901.C.1. RP, NMED's Exhibit A (Statutory and Regulatory Background) pg. 8 and AR Nos. 980529-38, 40-42.

47. The public notice contained all required information set forth in 20 NMAC 4.1.901.C.2. AR No. 980542.


49. NMED received public comment on the WIPP Draft Permit from thirty (30) persons on or before August 14, 1998. RP, NMED’s Exhibit A (Statutory and Regulatory Background) pg. 8; and AR Nos. 980545, 48, 53 -55; 980703-08, 980810 - 12, 14 - 30.

50. NMED received six (6) requests for a public hearing (AR Nos. 980553, 980814, 19, 24, 27, 30) and nine (9) requests for an extension of time to provide public comment on or before August 14, 1998. AR Nos. 980807, 14, 16, 19, 21-22, 26, 29-30.

51. On August 20, 1998, NMED informed those public commentors seeking an extension of time that the Department would review all public comment, revise the draft permit to incorporate public comment and provide a new revised draft permit for public notice at a later date. NMED did not grant an extension of time to submit comments on the ground
that the Draft Permit would be revised and the public would have another opportunity to comment upon the revised Draft Permit. Id. AR Nos. 980842, 47, 49, 52, 54-55, 60-62; and RP, NMED’s Exhibit A (Statutory and Regulatory Background) at pg. 8.

52. On August 29, 1998, NMED informed those public commentors who requested a public hearing that a public hearing would be held; however, NMED determined that a hearing date would be set after the WIPP Draft Permit was revised. Id. AR Nos. 980869-74.

53. On November 13, 1998, NMED issued a revised Draft Permit that incorporated public comment received on or before August 14, 1998. RP, NMED’s Exhibit A (Statutory and Regulatory Background) pp. 8-9 and AR No. 981134.

54. On November 13, 1998, NMED published a public notice announcing the availability of a revised Draft Permit and Fact Sheet and a written public comment period for sixty-seven (67) days until January 18, 1999. The public notice also announced a public hearing to accept oral public comment (technical and non-technical) on February 22, 1999. 20 NMAC 4.1.901.A.3 and .5. Id. AR No. 981134

55. The public notice required all persons, including the applicants, who wished to present technical oral public comment to file on or before February 1, 1999 a Notice of Intent To Present Technical Oral Comment containing certain specific information. RP, No.1. AR No. 981134 and NMED’s Exhibit A (Statutory and Regulatory Background) at pg. 9.
56. On November 13, 1998, NMED's public notice was published in the Albuquerque Journal, a newspaper of general circulation, and newspapers in Santa Fe, Carlsbad, Hobbs, Las Cruces and Roswell as required under 20 NMAC 4.1.901.A.3. and .901.C.1. RP, No. 1 and AR No. 981106-16. See also RP, NMED's Exhibit A (Statutory and Regulatory Background) at pg. 9.

57. NMED mailed a copy of the revised Draft Permit and announced availability of the fact sheet to the following: the Applicants, the USEPA, approximately 1230 individuals upon the Department's mailing list which includes those persons who requested notification as required under 20 NMAC 901.A.2 and .3 and 901.C.1. AR Nos. 981121-30, 32-34. See also NMED's Exhibit A (Statutory and Regulatory Background) at pg. 9.


60. On December 9, 1999, NMED issued a public notice announcing the availability of a supplemental fact sheet. The fact sheet identified two (2) errors in the printed version of the revised Draft Permit and that replacement pages were available. RP No. 10
61. NMED mailed a copy of the public notice and supplemental fact sheet to the following:
the Applicants, the USEPA, approximately four-hundred and twenty (420) individuals
upon the Department's mailing list and to any those persons who requested notification as
required under 20 NMAC 901.A.2 and .3 and 901.C.1. RP No.14 and NMED's Exhibit A
(Statutory and Regulatory Background) at pg. 9.

written public comments from the following persons or entities:
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63. On January 13, 1999, the NMED Secretary appointed Mr. Jeffery Gulin to preside as a Hearing Officer at the public hearing. RP No. 20.

64. On January 19, 1999, the NMED Secretary received the New Mexico Attorney General’s request for an extension of until February 1, 1999 to file written comments. RP No. 38.

65. On January 27, 1999, the NMED Secretary granted an extension of time to the New Mexico Attorney General’s Office until February 1, 1999 to file written comments. RP, No. 46.

66. On or before February 1, 1999, eleven (11) persons or entities filed *Notices of Intent To Present Technical Testimony* including the following: Bonnie Bonneau, RP, No.18; T. Rockefeller, RP, No. 29; Savanna River Site Citizens Advisory Board, RP, No. 31; EEG, RP, No. 45; NFT, RP, No. 49; CARD, RP, No. 50; SRIC, RP, No. 53; DOE/WID, RP, No. 54; CCNS, RP, No. 56; NM Attorney General, RP, No. 57 and; NMED, RP, No. 58.

67. On or before February 1, 1999, eight (8) persons filed an *Entry of Appearance* including: The Applicants (RP. No. 8); NMAG (RP, No. 38); EEG (RP, No. 44); SRIC (RP, No. 53); C. Wentz (RP No. 55); CCNS (RP, No. 56) and Bonnie Bonneau (RP, No. 18).
68. On February 8, 1999, the Hearing Officer issued a *Pre-Hearing Order* that identified the parties to the public hearing and provided for procedural rules in which the hearing would be conducted. RP, No. 68.

69. On February 19, 1999, the Hearing Officer, after considering all the parties motions and replies, issued a *Supplemental Pre-Hearing Order* to supplement the February 8, 1999 order. RP, No. 88.

70. On February 22, 1999, NMED conducted a public hearing in Santa Fe, New Mexico to consider technical and non-technical oral public comment. The hearing was held from February 22nd through the 26th, March 1st through the 5th; the hearing convened in Carlsbad, New Mexico on March 9th, 1999 to consider non-technical oral public comment; the hearing reconvened and was held in Santa Fe, New Mexico from March 15th through March 26th, 1999.

71. At the public hearing, the following parties presented technical oral public comment:

72. The public hearing was recorded by a certified court reporter; transcripts were furnished to all persons for review at the Hearing Clerk’s Office. 20 NMED 4.1.901.E.4.

73. At the public hearing, one-hundred and forty (140) persons provided non-technical oral comment and fourteen (14) persons provided written public comment. See NMED’s Exhibit 1 (NMED’s Response to Non-technical oral and written comment).

74. The public comment period ended on March 26, 1999 at the close of the public hearing. 20 NMAC 4.1.901.A.6.

75. The NMED Secretary is required to give due consideration and weight appropriate to all comments received during the public comment period and to all relevant facts and circumstances presented at the public hearing prior to ruling of Applicants’ final permit. 20 NMAC 4.1.901.A.7.

76. NMED’s response to public comments from the WIPP Draft Permit issued on May 13, 1998 is incorporated herein as NMED Exhibit 1.

77. NMED’s response to written and oral public comments (technical and non-technical) on the WIPP revised Draft Permit issued on November 13, 1999 is incorporated herein as NMED Exhibit 1.
78. Based upon public comment, NMED has recommended certain revisions to the WIPP revised Draft Permit. The basis for these revisions and NMED's decision is set forth in NMED's response to comments and is incorporated herein. See Exhibit 1 (Response to Comments), and Exhibit 2 \(^2\) (Technical Support Document).

79. NMED's revisions to the WIPP revised Draft Permit are incorporated into a proposed final HWA permit which is attached as NMED Exhibit 3.

80. Based upon public comment, NMED determined to not recommend certain revisions to the final HWA permit. The basis for this decision is set forth in NMED's response to comments and incorporated herein. See NMED Exhibit 1 (Response to Comments).

81. NMED has recommended certain revisions that are non-substantive and consist of typographical errors and minor editorial changes. These revisions are incorporated herein and specifically identified in NMED Exhibit 1 (NMED's Typographical and Editorial Changes).

82. Under NMED regulations, the burden of proof for issuance of a HWA permit, shall be on the Applicants. 20 NMAC 4.1.901.E.6.

\(^2\) See infra, Findings of Fact and Conclusions of Law (Module VII).
83. Under NMED regulations, the Applicant has the burden of persuasion of proving the facts relied upon to justify the Application, except for those conditions required by the Department in a Draft Permit. The Department has the burden of persuasion of going forward with evidence to prove the facts relied upon to justify conditions in a Draft Permit. After establishment of a prima facie case, any person opposed to the Application or Draft Permit has the burden of going forward with any adverse evidence showing why the Application or Draft Permit should not be granted. 20 NMAC 1.4.400.A.

84. In the final HWA permit, NMED imposed certain permit conditions which are summarized in the fact sheets published for the WIPP Draft and revised Draft permit and specifically addressed in written and oral testimony at the public hearing. See AR Nos. 980542, 981134 (fact sheets from the May 15, 1998 Draft Permit and November 14, 1998 revised Draft Permit); RP No. 14 (Supplemental Fact Sheet) and RP, NMED's Exhibit A.

85. In the final HWA permit, NMED proposed certain permit conditions based upon public comment for the reasons stated in NMED Exhibit 1 and addressed more specifically herein. See infra, Findings of Fact and Conclusions of Law (NMED's Imposed Conditions).

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3 NMED's permit conditions are more specifically addressed infra in Findings of Fact and Conclusions of Law (NMED imposed conditions).
B. CONCLUSIONS OF LAW

1. Based upon findings of fact 1 through 5, the Secretary has jurisdiction to require all persons that manage, store or dispose mixed transuranic waste to submit an application and obtain a final permit that includes corrective action requirements under the HWA and regulations under 20 NMAC 4.1. et. seq.

2. Based upon findings of fact 6 through 14, WIPP is a “miscellaneous unit” under 20 NMAC 4.1.101 (incorporating 40 CFR §260.10).

3. Based upon findings of fact 1 through 14, DOE is a “person” under Section 74-4-3.K of the HWA and the owner and operator of WIPP under 20 NMAC 4.1.900 (incorporating 40 CFR §270.2). WID is also a “person” under Section 74-4-3.K of the HWA and a co-operator of WIPP under 20 NMAC 4.1.900 (incorporating 40 CFR §270.2).

4. Based upon findings of fact 1 through 15, the NMED Secretary has authority to require and issue a final permit to DOE/WID for the management, storage or disposal of transuranic mixed waste at WIPP under the HWA and regulations under 20 NMAC 4.1. et. seq.

5. Based upon findings of fact 16 through 19, NMED issued a proper public notice regarding the receipt of DOE’s permit application as required under 40 CFR §124.32(b)(1).
6. Based upon findings of fact 19 through 42, NMED issued a proper completeness determination on January 5, 1998 finding that Applicants' Part B permit application was administratively complete and contained all general and specific information requirements as required under 20 NMAC 4.1.900 (incorporating 40 CFR §270.10(c)).

7. Based upon findings of fact 20 through 37, NMED properly requested and received information where the application contained specific technical inadequacies as provided under 20 NMAC 4.1.900 (incorporating 40 CFR §270.10(c)).

8. Based upon findings of fact 43 through 50, NMED provided proper legal notice and comment for the WIPP Draft Permit and fact sheet as required under 20 NMAC 4.1.901.A.2, .3 and .901.C and D.

9. Based upon findings of fact 51 through 54, NMED properly prepared a revised Draft Permit that incorporated public comment, was based upon the administrative record and was accompanied by a fact sheet. 20 NMAC 4.1.901.A.2.

10. Based upon findings of fact 54 through 61, NMED provided proper legal notice and comment for the revised Draft Permit and fact sheets as required under 20 NMAC 4.1.901.A.2, .3 and .901.C and D.
11. Based upon findings of fact 54 through 61, NMED provided proper legal notice of a public hearing to consider oral public comment as required under Section 74-4-4.2.H of the HWA and 20 NMAC 4.1.901.A.5.

12. Based upon findings of fact 54 through 68, the location of the public hearing in Santa Fe and Carlsbad, New Mexico complied with 20 NMAC 4.1.901.E.2.

13. Based upon findings of fact 70, the public hearing was transcribed and copies made available as required under 20 NMAC 4.1.901.E.4.

14. Based upon findings of fact 56 through 72, the Hearing Officer conducted the public hearing according to the procedures set forth in the public notice and Pre-Hearing Management Order in compliance with Section 74-4-4.2 of the HWA and 20 NMAC 4.1.901.E.5.

15. Based upon findings of fact 1 through 85, NMED has duly considered all public comment received during the public comment period and incorporated applicable public comment in proposing revisions to a final HWA permit for WIPP. 20 NMAC 4.1.901.A.7 and .9.

16. Based upon findings of fact 1 through 85, NMED has set forth the reasons for incorporating recommended revisions to the final HWA permit in its response to comments. 20 NMAC 4.1.901.A.9.
17. Based upon findings of fact 1 through 85, NMED's revisions to the final HWA permit as provided for in the response to comments is reasonable, supported in the record and consistent with the HWA and 20 NMAC 4.1. et. seq.

18. Based upon findings of fact 1 through 85, NMED's determination to not support certain recommended revisions to the final HWA permit is reasonable, supported in the record and consistent with the HWA and 20 NMAC 4.1. et. seq.

19. Based upon findings of fact 1 through 85, NMED met its burden of proof in support of NMED's permit conditions by presenting substantial evidence in the record to justify these conditions, including the fact sheets published for the WIPP revised Draft Permit and written and oral testimony at the public hearing. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.400.A and infra, Findings of Fact and Conclusions of Law (NMED’s Imposed Conditions).

20. Based upon findings of fact 1 through 85, NMED’s recommended permit conditions in the final HWA permit are reasonable, fully supported by the record, and in accordance with the HWA and 20 NMAC 4.1. et. seq.
21. Based upon findings of fact 1 through 85, the Applicants' final HWA permit, if approved by the Secretary with NMED's conditions, will comply with all regulatory requirements under the HWA and 20 NMAC 4.1. et. seq.

22. Based upon findings of fact 1 through 85, issuance of the final HWA permit to Applicants with recommended conditions imposed by NMED are not contradictory or in violation of the HWA or 20 NMAC 4.1. et. seq.

23. Based upon findings of fact 1 through 85, the WIPP permit application, revised Draft Permit, public hearing and full record reveal no basis for which to deny the Applicants a final HWA permit with NMED's recommended conditions under Section 74-4-4.2.D of the HWA.
II. NMED'S IMPOSED CONDITIONS

A. MODULE II

1. AUDIT REQUIREMENT

A. FINDINGS OF FACT

1. As a condition for approval of the Waste Analysis Plan (WAP), Module II, Condition II.C.2 of the revised Draft Permit requires the Permittees to audit generator/storage sites to demonstrate implementation and compliance with the Waste Analysis Plan. RP, No. 5; AR, No. 981134; TR, C. Walker, pg. 2724, lines 18 through 21; K. Hunter, pg. 711, lines 9 through 14.

2. The Applicants proposed the audit process as part of their WAP in Revision 5.0 of the Permit Application. RP, No. 5; AR, No. J.

3. NMED reviewed Revision 5.0 of the WIPP RCRA Part B Permit Application and concluded the WAP was deficient. In a request for information, NMED states:

"Chapter C of the permit application does not provide sufficient discussion of sampling and analyses intended to characterize waste at the generator site and how this information will be verified and checked by the generator. It also does not include waste analyses data that are currently available, and does not include volumetric data regarding how much waste from each waste summary category is anticipated for disposal at WIPP. For example, the permit application pays only cursory attention to sampling and analyses procedures for Waste Summary Categories S3000 and S4000, and does not discuss how many drums of waste from these categories will be sampled, analyzed, and statistically evaluated prior to shipment, as detailed in the 1995 QAPP, Section 5.0. [The QAPP (1995) indicates that all drums will undergo headspace gas analyses and RTR, with limited visual"
examination of all waste categories and limited confirmatory sampling of Waste Summary Categories S3000 and S4000. ] Revise Chapter C of the permit application to include more detailed information regarding sampling and analyses performed at the generator site, verification and checking of this information, and to include available waste analyses data. For example, refer to Specific Comment Nos. 8, 11, and 21-63.

NMED is concerned about how potential breakdowns in the waste characterization process at the generator sites would be identified and at what level of severity NMED would be notified. 20 NMAC 4.1, Subpart V, 264.13(a)(4) requires inspection and, if necessary, analysis of waste received by the owner/operator of an off-site facility. Since DOE will not be conducting analysis of wastes received at WIPP, NMED needs assurances that the process of waste characterization at the generator sites is adequately monitored and audited, and that any significant failures are disclosed to NMED in a timely fashion. Revise the applicable sections of the chapter to address these concerns more clearly."

RP, No. 5; NMED's Exhibit A (Audit Requirement); AR, No. 960308.

4. In response to NMED’s Notice of Deficiency, the Applicants submitted Revision 6 of the WIPP RCRA Part B Permit Application. With respect to the audit process, this Revision states:

The Waste Isolation Pilot Plant (WIPP) Generator Site Waste Screening and Acceptance Audit Program ensures that: 1) the operators of generator/storage sites that plan to transport transuranic (TRU) mixed waste to the WIPP facility conduct sampling and analysis of wastes in accordance with the current WIPP Waste Analysis Plan (WAP), and 2) the information supplied by each generator/storage site to satisfy the waste screening and acceptability requirements of Section C-5 of the WAP is being managed properly. WIPP (meaning both the U.S. Department of Energy Carlsbad Area Office [DOE/CAO] and Westinghouse Waste Isolation Division [WID] personnel) will conduct these audits at the generator sites in accordance with a standard operating procedure. This procedure will contain steps for selecting audit personnel, reviewing applicable background information, preparing audit checklists, conducting the audit, developing an audit report, and following up on deficiencies.

RP, No. 5; AR, No. X, Appendix C11, pg. C11-1.
5. The Revision 6 audit process proposed by the Applicants had the following deficiencies:
   a. The audit process proposed by the Applicants did not provide for NMED participation in the site visits to generator/storage sites.
   b. The audit process proposed by the Applicants did not provide for the submittal of a final audit report to NMED.
   c. The audit process proposed by the Applicants did not provide for NMED review and approval.

RP, NMED’s Exhibit A (Audit Requirement); TR, K. Hunter, pg. 690, lines 24 through 25, pg. 691, lines 1 through 25 and pg. 692, lines 1 through 2.

6. In order to correct deficiencies in the audit process provided in the permit application, NMED proposed Permit Condition II.C.2. RP, NMED’s Exhibit A (Audit Requirement); TR, S. Zappe, pp. 2377-2378.

7. Permit Condition II.C.2 of the revised Draft Permit states:

   The Permittees shall not manage, store, or dispose TRU mixed waste at WIPP from a generator/storage site until the following conditions have been met as necessary for the Secretary to determine that the characterization requirements of Permit Condition have been implemented:

   Requirement to audit - the Permittees shall demonstrate to the Secretary that the generator/storage sites have implemented and comply with applicable requirements of the WAP by conducting an audit of the generator/storage sites as specified in Permit Attachment B, Section B-4b(1)(iii), and Permit Attachment B6 (Waste Isolation Pilot Plant Permittees' Audit and Surveillance Program), and as required by 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13).

   Observation of audit - the Secretary may observe such audits as necessary to validate the implementation of and compliance with applicable WAP requirements at each generator/storage site. The Permittees shall provide the Secretary with a
current audit schedule and notify the Secretary no later than forty-five (45) calendar days prior to each audit.

**Final audit report** - the Permittees shall provide the Secretary a final audit report as specified in Permit Attachment B6. The final audit report shall include all information specified in Permit Attachment B6, Section B6-4, and:

- A detailed description of all corrective actions and the resolution of any corrective action applicable to WAP requirements, including re-audits if required;
- All documentation necessary for the Secretary to determine if the corrective action was resolved.

**Secretary notification of approval** - the Secretary shall approve the Permittees' final audit report by written notification to the Permittees that the characterization requirements of the WAP at a generator/storage site have been implemented.

RP, No. No. 5; AR, No. 981134.

8. **20 NMAC 4.1.900** (incorporating 40 CFR §270.32(b)(1)) requires each Hazardous Waste Act (HWA) permit to include permit conditions necessary to achieve compliance with the HWA and regulations, including each of the applicable requirements specified in 20 NMAC 4.1.500 (incorporating 40 CFR Part 264).

9. **20 NMAC 4.1.900** (incorporating 40 CFR §270.14(b)(2)) requires a permit application for a hazardous waste management facility to contain chemical and physical analyses of the hazardous waste and hazardous debris to be handled at the facility.

10. At a minimum, the physical and chemical analyses submitted in the permit application must contain all the information which must be known to treat, store or dispose of the wastes
properly in accordance with 40 CFR Part 264. 20 NMAC 4.1.900 (incorporating 40 CFR §270.14(b)(2)).

11. The permit application did not contain chemical and physical analyses of the hazardous waste and hazardous debris to be handled at the facility. RP, NMED’s Exhibit A (Audit Requirement); TR, K. Hunter, pg. 692, lines 3 through 9.

12. The permit application did not contain all the information which must be known to treat, store or dispose of the wastes properly in accordance with 40 CFR Part 264. RP, NMED’s Exhibit A (Audit Requirement); TR, K. Hunter, pg. 690, lines 12 through 23.

13. Typically, Subpart X facilities (Miscellaneous Units), such as WIPP, submit applications containing detailed chemical and physical analyses provided by the generator sites. RP, NMED’s Exhibit A (Audit Requirement).

14. Instead of providing all the information in the permit application which must be known to store and dispose hazardous waste at WIPP, the Applicants have proposed procedures, including audits of generator/storage sites, to collect this required information. TR, K. Hunter, pg. 692, lines 3 through 9.

15. The Applicants concur that the generator/storage site Quality Assurance Project Plans and Standard Operating Procedures will detail waste characterization activities at these sites,
including implementation of the Waste Acceptance Criteria. TR, K. Hunter, pg. 693, lines 6 through 10.

16. The Applicants did not submit, as part of their permit application, the generator/storage site Quality Assurance Project Plans or Standard Operating Procedures regarding waste characterization. TR, K. Hunter, pg. 692, line 25 and pg. 693, lines 1 through 5.

17. The Applicants concur that the Quality Assurance Project Plans and Standard Operating Procedures for generator/storage sites will be subject to the audit requirement and are an important part of the audit to demonstrate compliance with the Waste Acceptance Criteria. TR, K. Hunter, pg. 693, lines 11 through 18.

18. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(1)) requires that before an owner or operator treats, stores or disposes of any hazardous wastes, he must obtain a detailed chemical and physical analysis of a representative sample of the wastes.

19. At a minimum, the chemical and physical analysis required by 40 CFR §264.13(a)(1) must contain all the information which must be known to treat, store or dispose of the waste. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(1)).

20. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(b)) requires the owner or operator to develop and follow a written Waste Analysis Plan which describes procedures which he will carry out to comply with 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)).
21. At a minimum the Waste Analysis Plan required in 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(b)(1)-(5)) must specify, inter alia, parameters, test methods and sampling methods used to obtain a representative sample, the frequency of review of the analyses to ensure accuracy and the waste analyses that generator/storage sites will supply.

22. The Applicants proposed the audit process as a method for obtaining all the information which must be known to store and dispose hazardous waste at WIPP. TR, K. Hunter, pg. 690, lines 12 through 23.

23. The audit requirement is the only method available to obtain all the information which must be known to store and dispose hazardous waste at WIPP. RP, NMED’s Exhibit A (Audit Requirement).

24. The audit process will provide required information regarding the process by which the Applicants have proposed to obtain a detailed physical and chemical analysis of a representative sample of hazardous waste which will be stored and disposed at WIPP. TR, K. Hunter, pg. 692, lines 3 through 9.

25. Waste analysis procedures, such as those provided in the generator/storage sites’ Quality Assurance Project Plans and Standard Operating Procedures, were not provided in the WIPP RCRA Part B Permit Application. AR, Nos. J, R and X; RP, No. 5; TR, K. Hunter, pg. 692, line 25 and pg. 693, lines 1 through 5.
26. The audit process will provide required WAP information concerning detailed procedures, including the generator/storage sites' Quality Assurance Project Plans and Standard Operating Procedures, for parameters, test methods and sampling methods used to obtain a representative sample, the frequency of review of the analyses to ensure accuracy and the waste analyses that generator/storage sites will supply. TR, K. Hunter, pg. 692, line 25 and pg. 693, lines 1 through 14.

27. The owner or operator of an off-site facility must inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(4)).

28. For off-site facilities, the waste analysis plan must specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(c)).

29. Analysis of hazardous waste by the off-site facility to confirm the identity of a waste shipment is termed "fingerprint analysis". RP, NMED's Exhibit A (Audit Requirement).
30. Hazardous waste management facilities typically include provisions for fingerprint analyses in a RCRA permit application. RP, NMED's Exhibit A (Audit Requirement).

31. The Applicants did not include provisions in the WIPP RCRA Part B Permit Application for fingerprint analyses to confirm the identity of waste shipments received at WIPP. AR, Nos. J, R and X; RP, No. 5; RP, NMED's Exhibit A (Audit Requirement); TR, K. Hunter, pg. 692, lines 3 through 18.

32. The Applicants concur that without fingerprint analysis the audit requirement is the only method available to ensure that required waste characterization data are obtained and that WAC procedures are properly implemented. TR, K. Hunter, pg. 692, lines 19 through 23.

33. With respect to fingerprint analysis, the Environment Protection Agency (EPA) states:

Acceptable knowledge is not an appropriate substitute for fingerprint or spot check procedures except in the unique case when the TSDF is accepting properly manifested waste from another site owned by the same company.

AR Document F, Waste Analysis at Facilities that Generate, Treat, Store, And Dispose of Hazardous Wastes, OSWER/EPA 9938.4-03, April, 1994, pg. 1 through 14, emphasis in the original; RP, NMED's Exhibit A (Audit Requirement).

34. Each permit for an interim status or new hazardous waste management facility shall contain terms and conditions as necessary to protect human health and the environment.

20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).
35. Permits for Miscellaneous Units are to contain such terms and provisions as necessary to protect human health and the environment. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601).

36. 20 NMAC 4.1.500 and 900 (incorporating 40 CFR §§ 264.13(a)(1) and 270.14(b)(2)) require the owner or operator to obtain, for the permit application and the WAP, all the information which must be known to store and dispose waste properly.

37. Hazardous waste may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored transported, disposed of or otherwise managed. NMSA 1978 § 74-4-3(1)(2) (Repl. Pamp. 1993).

38. Disposal of hazardous waste in or on the land without careful planning and management can present a danger to human health and the environment. 42 U.S.C.A. § 6901(b)(2).

39. The placement of inadequate controls on hazardous waste management will result in substantial risks to human health and the environment. 42 U.S.C.A § 6901(b)(5).

40. With respect to the importance of waste analysis in accomplishing the protection of human health and the environment, the EPA states:

The cornerstone of the RCRA program, and the focus on this guidance manual, is the ability of facility personnel to identify properly, through waste analysis, all wastes that they generate, treat, store, or dispose of.
41. The EPA further states:

"Waste analysis, therefore, is the pivotal activity that you must conduct properly to ensure that your facility is in compliance with the myriad applicable regulations for proper waste treatment, storage, or disposal."

42. The Applicants did not include in the permit application all the information which must be known to store and dispose waste at WIPP, including a detailed physical and chemical analysis of a representative sample of the waste. 20 NMAC 4.1.900 (incorporating 40 CFR 270.14(b)(2)). RP, NMED's Exhibit A (Audit Requirement); TR, K. Hunter, pg. 690, lines 12 through 23, pg. 692, lines 3 through 9.

43. The audit process is the only method available to demonstrate that generator/storage sites have implemented and complied with applicable portions of the WAP. AR, No. 981134, RP, No. 5 (Revised Draft Permit, Module II, Condition II.C.2.a); RP, NMED's Exhibit A (Audit Requirement).

44. The Applicants have proposed the audit requirement as a process to obtain all required waste characterization information. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(1)). TR, K. Hunter, pg. 690, lines 12 through 23.
45. The Applicants concur that the audit program is the only method available to ensure that required waste characterization data are obtained and that WAC procedures are properly implemented. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(1)). TR, K. Hunter, pg. 692, lines 19 through 24.

46. The generator/storage sites' Quality Assurance Project Plans and Standard Operating Procedures, which were not provided in the hazardous waste permit application, are documents which detail waste characterization activities at the sites. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(b)). TR, K. Hunter, pg. 692, line 25 and pg. 693, lines 1 through 10.

47. The generator/storage sites' Quality Assurance Project Plans and Standard Operating Procedures will be subject to the audit requirement. TR, K. Hunter, pg. 693, lines 11 through 14.

48. EPA guidance regarding special concerns for waste analysis at hazardous waste facilities states:

First, if you own/operate an off-site TSDF [Treatment, Storage or Disposal Facility] and rely on information supplied by a generator, you should, if possible, become thoroughly familiar with the generator’s processes to verify the integrity of data. This can be accomplished by (1) conducting facility visits of generators and/or (2) obtaining split samples for confirmatory analysis.

49. The Applicants do not intend to analyze split samples of hazardous waste at WIPP. NMED’s Exhibit A, Audit Requirement, p. 2.

50. Condition II.C.2.a requires the Permittees to conduct an on-site audit to demonstrate the generator/storage sites are implementing and complying with applicable WAP requirements. AR, No. X, RP, No. 5 (Revised Draft Permit, Module II, Condition II.C.2.a); RP, NMED’s Exhibit A (Audit Requirement).

51. The New Mexico Attorney’s General Office states that an audit program is appropriate to ensure adequate waste characterization because WIPP will not perform any waste characterization on-site, and there is insufficient characterization information in the permit application to determine whether the generator/storage sites can comply with the terms of the draft permit. RP, No. 5; AR, No. 980819, 980828.

52. The EPA supports the audit process proposed in Permit Condition II.C.2 of the Revised Draft Permit and commented that the approval of final audit reports should be expedited. RP, No. 23.

The Applicants' January 19, 1999 comment on the audit requirement, which modified Comment 151 from the Applicants' December 22, 1998 submittal and superceded the Applicants' August 14, 1998 submittal, states:

While the Permittees believe that the NMED can confirm generator site compliance with the WAP through the NMED's inspection and enforcement authority, the Permittees do not object to NMED participation in and review and approval of WAP Audits provided that the review process is clearly memorialized and structured to provide timely review and approval. To make this clear, the Permittees specifically withdraw the paragraph in comment 141 entitled “Existing certifications” in its entirety and those portions of the paragraph entitled “Role of Public Comment” which can be interpreted as suggesting that EPA certification should replace NMED audit review.

RP, No. 36, Executive Summary § 1.1.2, emphasis added.

The Applicants proposed the audit requirement as a process to obtain all required waste characterization information. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)(1)).

AR, Nos. J and X; RP, No. 5; TR, K. Hunter, pg. 690, lines 12 through 23.

The Applicants concur with Permit Condition II.C.2.a, requiring audits of the generator/storage sites to demonstrate implementation and compliance with applicable portions of the WAP. AR, No. 981134; RP, No. 5; TR, K. Hunter, pg. 690, lines 18 through 23 and pg. 709, lines 1 through 11.

The Applicants concur with Permit Condition II.C.2.b providing NMED authority to participate in the Permittees' audits of generator/storage sites to demonstrate implementation and compliance with applicable portions of the WAP. AR, No. 981134; RP, No. 5; TR, K. Hunter, pg. 691, lines 4 through 10 and pg. 709, lines 12 through 15.
58. The Applicants do not object to Permit Condition II.C.2.c requiring the Permittees to submit a final audit report. AR, No. 981134; RP, No. 5; TR, K. Hunter, pg. 709, lines 16 through 18.

59. The Applicants do not object to Permit Condition II.C.2.d providing NMED authority to approve the final audit report, provided the process is clearly memorialized and structured to provide timely review and approval. AR, No. 981134; RP, No. 5; TR, K. Hunter, pg. 709, lines 19-24; RP, Nos. 15 and 36.

60. The Applicants have four comments concerning the audit process:

1. First, the Applicants prefer a time-line for approval by NMED of the final audit report.

2. Second, the Applicants prefer mandatory NMED participation in all audits and resolution of all conflicts during the audit.

3. Third, the Applicants prefer that audits not include the review of actual waste characterization data.

4. Fourth, the Applicants believe that providing NMED with a 45-day notice prior to an audit is infeasible.

TR, K. Hunter, pg. 709, lines 1 through 25, pg. 710, lines 1 through 25 and pg. 711, lines 1 through 8.
The Applicants have withdrawn, or withdrawn in part and modified in part, the following comments concerning the audit process:

1. The Applicants have withdrawn in part and modified in part their comment which preferred no public participation in the audit process.

2. The Applicants have withdrawn their comment which preferred NMED’s reliance on EPA’s certification of generator/storage sites.

RP, Nos. 15 and 36.

With regard to the Applicants’ preference for a thirty-day time-frame for approval of the final audit report, NMED provides the following response:

a. There is no regulatory basis for imposing a specific time-frame for approval of the final audit report. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13); TR, S. Zappe, pg.2461, lines 16 through 18.

b. The Applicants’ proposal regarding the final audit report approval time-frame is vague. TR, S. Zappe, pg.2461, lines 18 through 22.

c. The scope of audits is unknown and could constitute multiple audit reports addressing multiple procedures, waste categories or waste streams. TR, S. Zappe, pg.2461, lines 23 through 25 and pg. 2462, lines 1 through 22.

d. The time-frame for approval of final audit reports is depends upon an audit report’s quality, completeness, accuracy and organization. TR, S. Zappe, pg.2462, lines 24 through 25 and pg. 2463, lines 1 through 8.

e. EPA audits of generator/storage sites have taken longer than 8 months to complete. TR, S. Zappe, pg.2463, lines 12 through 25 and pg. 2464, line 1.
f. NMED's is unable to commit to specific time-frames for audit approval because future resources and budgetary constraints are unknown. TR, S. Zappe, pg. 2464, lines 11 through 19.

63. With regard to the Applicants' preference for NMED participation in all audits and resolution of all conflicts prior to the close of an audit, NMED provides the following response:

a. NMED concurs with the Applicants that the Department should be authorized to participate in any site audit. RP, NMED's Exhibit A (Audit Requirement); TR, K. Hunter, pg. 691, lines 4 through 10 and pg. 709, lines 12 through 15.

b. NMED cannot restrict its obligation and authority to address deficiencies concerning implementation or compliance by the Permittees with the WAP during review of the final audit report, which, by necessity, must occur after close of the audit. RP, NMED's Exhibit A (Audit Requirement).

c. Closure of all conflicts during an audit is inappropriate because NMED may be unable to participate in all audits. TR, C. Walker, pg. 2728, lines 7 through 9.

d. NMED's is unable to commit to obligatory participation of all audits because future resources and budgetary constraints are unknown. TR, S. Zappe, pg. 2464, lines 11 through 19.

64. With respect to the Applicants' preference that NMED not review actual waste characterization information during an audit, NMED provides the following response:
a. NMED must review actual waste characterization data to determine whether required methods have functioned as designed, whether the WAP was properly implemented and whether any characterization problems are identified and corrected. AR, No. 5 (Revised Draft Permit, Module II, Condition II.C.2.c); TR, D. Walker, pg. 2728, lines 10 through 24; RP, NMED's Exhibit A (Audit Requirement).

65. With respect to the Applicants' assertion that they are unable to provide a 45-day notice to NMED for upcoming audits, NMED has considered this comment and proposes the following revisions to the proposed Final Permit (revisions are noted in redline/strikeout format):

The Permittees shall not manage, store, or dispose TRU mixed waste at WIPP from a generator/storage site until the following conditions have been met as necessary for the Secretary to determine that the characterization requirements of Permit Condition have been implemented:

Requirement to audit - the Permittees shall demonstrate to the Secretary that the generator/storage sites have implemented and comply with applicable requirements of the WAP by conducting an audit of the generator/storage sites as specified in Permit Attachment B, Section B-4b(1)(iii), and Permit Attachment B6 (Waste Isolation Pilot Plant Permittees' Audit and Surveillance Program), and as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13).

Observation of audit - the Secretary may observe such audits as necessary to validate the implementation of and compliance with applicable WAP requirements at each generator/storage site. The Permittees shall provide the Secretary with a current audit schedule on a monthly basis and notify the Secretary no later than forty-five (45) thirty (30) calendar days prior to each audit.

Final audit report - the Permittees shall provide the Secretary a final audit report as specified in Permit Attachment B6. The final audit report shall include all information specified in Permit Attachment B6, Section B6-4, and:
A detailed description of all corrective actions and the resolution of any corrective action applicable to WAP requirements, including re-audits if required;

All documentation necessary for the Secretary to determine if the corrective action was resolved.

**Secretary notification of approval** - the Secretary shall approve the Permittees' final audit report by written notification to the Permittees that the characterization requirements of the WAP at a generator/storage site have been implemented.

66. With respect to the Applicants' comment concerning public participation in the audit process, NMED provides the following response:

a. NMED is required to provide public access to public records. TR, K. Walker, pg. 2729, lines 6 through 8.

b. Audit reports will be maintained as part of the permit and NMED will treat them as public documents. TR, K. Walker, pg. 2729, lines 8 through 10.

c. The public may examine any public document and may provide comments to NMED. TR, K. Walker, pg. 2729, lines 10 through 13.
B. CONCLUSIONS OF LAW

1. Based on Finding of Fact No. 1 and 34 through 47, the audit requirement as proposed by NMED in Condition II.C.2 of the Revised Draft Permit and the proposed Final Permit is a condition necessary for NMED's approval of the Waste Analysis Plan in order to protect human health and the environment. 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

2. Based on Findings of Fact No. 2 through 7 and 11 through 17, the audit process proposed in the permit application was deficient because it did not contain a physical and chemical analysis of the hazardous waste to be handled at WIPP, did not contain all the information which must be known to store and dispose waste properly in accordance with 40 CFR Part 264 and did not provide for NMED participation, review and approval, as required by 20 NMAC 4.1.500 and 900 (incorporating 40 CFR §§ 264.13(a)(1) and 270.14(b)(2)).

3. Based on Findings of Fact No. 1 through 17 and 65, NMED's Permit Condition II.C.2 of the proposed final HWA Permit is a condition necessary to achieve compliance with 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14 (b)(2) and § 270.32(b)(1)) in order to address permit application deficiencies. 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

4. Based on Findings of Fact No. 1 through 33 and 65, NMED's Permit Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial evidence and in
accordance with law, necessary to achieve compliance with 20 NMAC 4.1.900
(incorporating 40 CFR §§ 264.13(a)(1), 270.14 (b)(2) and 270.32(b)(1)) in order to
obtain all the information which must be known to manage, store and dispose TRU mixed
waste at WIPP in accordance with 40 CFR Part 264. 20 NMAC 4.1.901.A.8 and NMSA
1978 § 74-4-4.2(C) (Repl. Pamp. 1993). 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-
4-4.2(C) (Repl. Pamp. 1993).

5. Based on Findings of Fact No. 1 through 8, 27 through 33 and 65, NMED’s Permit
Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial
evidence and in accordance with law, necessary because the Applicants have not proposed
fingerprint analysis or split sampling of waste to confirm that the waste is properly
characterized, as provided by 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(c)). 20
NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

6. Based on Findings of Fact No. 1 through 8, 18 through 26 and 65, NMED’s Permit
Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial
evidence and in accordance with law, necessary to achieve compliance with 20 NMAC
4.1.900 (incorporating 40 CFR §§ 264.13(a)(1), 270.14 (b)(2) and § 270.32(b)(1)) in
order to ensure the Permittees are able to demonstrate compliance with the WAP by
conducting physical and chemical analyses of representative samples of the waste. 20
NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).
7. Based on Findings of Fact No. 1 through 33 and 65, NMED's Permit Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial evidence and in accordance with law, necessary to achieve compliance with 20 NMAC 4.1.900 (incorporating 40 CFR §§ 264.13(b) and § 270.32(b)(1)) in order to provide written procedures for the Waste Analysis Plan. 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

8. Based on Findings of Fact No. 1 through 8, 34 through 47 and 65, NMED’s Permit Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial evidence and in accordance with law, necessary to protect human health and the environment in order to ensure that waste is properly characterized by obtaining all the information which must be known to store and dispose hazardous waste at WIPP. 20 NMAC 4.1.900 (incorporating 40 CFR §§ 264.13(a)(1) and § 270.32(b)(2)), 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

9. Based on Findings of Fact No. 1 through 8, 34 through 47 and 65, NMED’s Permit Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial evidence and in accordance with law, necessary to protect human health and the environment in order to ensure that waste is properly characterized by obtaining a physical and chemical analysis of a representative sample of waste to be stored and disposed at WIPP. 20 NMAC 4.1.900 (incorporating 40 CFR §§ 264.13(a)(1) and § 270.32(b)(2)). 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).
10. Based on Findings of Fact No. 1 through 8, 34 through 47 and 65, NMED's Permit Condition II.C.2 of the proposed final HWA Permit is reasonable, supported by substantial evidence and in accordance with law, necessary to protect human health and the environment in order to ensure that waste is properly characterized by providing written procedures for the Waste Analysis Plan. 20 NMAC 4.1.900 (incorporating 40 CFR §§ 264.13(b) and § 270.32(b)(2)). 20 NMAC 4.1.901.A.8 and NMSA 1978 § 74-4-4.2(C) (Repl. Pamp. 1993).

11. Based on Findings of Fact No. 33, 40, 41, 48 through 50 and 52, NMED's Permit Condition II.C.2 of the proposed final HWA Permit is consistent with applicable EPA guidance.

12. Based on Findings of Fact 51 through 66 and Exhibit 1, NMED has duly considered all public comments received during the public comment period, has specified which provisions of draft permit has been changed and has provided reasons for these changes in accordance with 20 NMAC §§ 4.1.901.A.7 and 4.1.901.A.9.

13. Based on Findings of Fact 1 through 66 and Exhibit 1, no Party or commenter has met their burden in challenging NMED's determination to impose Permit Condition II.C.2 by presenting substantial evidence that this condition is unreasonable or inconsistent with the HWA. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
2. REMOTE-HANDLED TRU WASTE PROHIBITION
(Permit Condition H.C.3.H)

A. FINDINGS OF FACT

1. Permit Condition II.C.3.h provides that the permittees shall not accept TRU mixed wastes at WIPP for storage, management or disposal that fails to meet the waste acceptance criteria under Permit Conditions II.C.3.a through II.C.3.k. Permit Condition II.C.3.h prohibits Remote-Handled (RH) transuranic wastes.

2. Section 74-4-4.2.C of the HWA provides that the Secretary may issue a permit for the management, storage or disposal of hazardous waste upon a determination that the applicant has met the requirements set forth in the HWA, including the requirement that the applicant submit a permit application which contains all necessary information required under the Act or regulation. NMSA 1978, §§ 74-4-4.2A and 74-4-4.2.C (Repl. P.A. 1993).

3. NMED regulations at 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)) a permit application for a hazardous waste management facility to contain physical analyses of the hazardous waste and hazardous debris to be han

4. NMED regulations provide that “[a]t a minimum, the physical and e submitted in the permit application must contain all the informatic to treat, store or dispose of the wastes properly in accordance , NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(2)).
5. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)) establish the requirement for an approvable waste analysis plan and requires that the owner obtain a "detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with this Part and Part 268 of this chapter." 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(b)) provides that the owner and operator must develop and follow a written waste analysis plan which describes the procedures which he will carry out to comply with 40 CFR § 264.13(a)).

6. On May 26, 1995, the Applicants submitted Permit Revision 5.0 to the permit applicant to manage, store and dispose remote-handled (RH) mixed waste at WIPP. However, the Application failed to include an approvable waste analysis plan for RH waste as required by 20 NMAC 4.1.500 (incorporating 20 NMAC § 264.13). RP, NMED's Exhibit Waste Prohibition) at pp. 1 - 2. Permit Revision 5.0 of the application stated that the proposed WAP applied to CH waste, but acknowledged that it did not contain characterization procedures for RH waste, and in fact, that none had been done. No. 5 (Permit Application (Rev. 5.0) pg. C-4) (AR No. X) and RP, NMF (RH Waste Prohibition) at pp. 1 - 2.

7. Applicants have made conflicting statements regarding the applicable characterization methodology to RH waste. RP, NMED's Exhibit Prohibition) at pg. 2. The most recent Waste Characterization
2. **REMOTE-HANDLED TRU WASTE PROHIBITION**  
**PERMIT CONDITION II.C.3.H**

A. **FINDINGS OF FACT**

1. Permit Condition II.C.3 provides that the permittees shall not accept TRU mixed wastes at WIPP for storage, management or disposal that fails to meet the waste acceptance criteria under Permit Conditions II.C.3.a through II.C.3.k. Permit Condition II.C.3.h prohibits Remote-Handled (RH) transuranic wastes.

2. Section 74-4-4.2.C of the HWA provides that the Secretary may issue a permit for the management, storage or disposal of hazardous waste upon a determination that the applicant has met the requirements set forth in the HWA, including the requirement that the applicant submit a permit application which contains all necessary information required under the Act or regulation. NMSA 1978, §§ 74-4-4.2A and 74-4-4.2.C (Repl. Pamp. 1993).

3. NMED regulations at 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(2)) requires a permit application for a hazardous waste management facility to contain chemical and physical analyses of the hazardous waste and hazardous debris to be handled at the facility.

4. NMED regulations provide that “[a]t a minimum, the physical and chemical analyses submitted in the permit application must contain all the information which must be known to treat, store or dispose of the wastes properly in accordance with 40 CFR Part 264.” 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(2)).
5. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(a)) establish the requirement for an approvable waste analysis plan and requires that the owner obtain a "detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with this Part and Part 268 of this chapter."

20 NMAC 4.1.500 (incorporating 40 CFR § 264.13(b)) provides that the owner and operator must develop and follow a written waste analysis plan which describes the procedures which he will carry out to comply with 40 CFR § 264.13(a)).

6. On May 26, 1995, the Applicants submitted Permit Revision 5.0 to the permit application to manage, store and dispose remote-handled (RH) mixed waste at WIPP. However, the Application failed to include an approvable waste analysis plan for RH waste as required by 20 NMAC 4.1.500 (incorporating 20 NMAC § 264.13). RP, NMED's Exhibit A (RH Waste Prohibition) at pp. 1 - 2. Permit Revision 5.0 of the application stated that the proposed WAP applied to CH waste, but acknowledged that it did not contain any characterization procedures for RH waste, and in fact, that none had been developed. RP, No. 5 (Permit Application (Rev. 5.0) pg. C-4) (AR No. X) and RP, NMED's Exhibit A (RH Waste Prohibition) at pp. 1 - 2.

7. Applicants have made conflicting statements regarding the applicability of WAP waste characterization methodology to RH waste. RP, NMED's Exhibit A (RH Waste Prohibition) at pg. 2. The most recent Waste Characterization Program Plan
(QAPP)(1996)\(^1\) states in Section 1.0: "This QAPP discusses the characterization of contact-handled transuranic (CH-TRU) waste streams only. Remote-handled transuranic (RH-TRU) waste streams will be addressed in a later revision". AR No. "AG." NMED's Exhibit A (RH Waste Prohibition) at pg. 2.

8. On November 2, 1995, NMED issued a request for information concluding that the Applicants must submit additional information regarding the chemical and physical analysis of RH waste.\(^2\) AR Nos. 951101. RP, NMED's Exhibit A (RH Waste Prohibition) at pg. 2 and (Statutory and Regulatory History) at pg. 5.

9. On December 21, 1995, the Applicants responded to the request for information stating "[a]t this time, detailed information on RH TRU waste characterization methods is not available." AR No. 951225 and RP, NMED's Exhibit A (RH Waste Prohibition) pg. 2 and (Statutory and Regulatory History) at pg. 6.

10. On March 14, 1996, NMED issued a Notice of Deficiency (NOD) on Permit Revision 5.2 which provided that the characterization procedures for RH waste were deficient and requested detailed information regarding these procedures. NMED stated that the "level of detail of RH waste [characterization] information is severely lacking ... the Application

\(^1\) The correct data for the QAPP is 1996 and not 1998 as stated in written testimony. See AR No. "AG."

\(^2\) NMED testimony incorrectly referred to this document as a Notice of Deficiency; the administrative record citation correctly refers to it as a request for information.
must include specific sampling and analytical methods ... this information is required [by] 20 NMAC 4.1. Subpart V, 264.13(b)(2)." AR No. 960308 and NMED’s Exhibit A (Statutory and Regulatory History) at pg. 6.

11. In Permit Revision 6.0, the Applicants asserted that CH waste methods applied to RH waste. RP, No. 5 (Permit Application, Chapter C, page C-4)(AR No. X). However, the Applicants again failed to include any detailed waste characterization procedures for RH waste. NMED’s Exhibit A (RH Waste Prohibition) pg. 2 and (Statutory and Regulatory History) at pg. 7.

12. Permit Revision 6.0 was deficient with regard to the RH waste characterization for the same reasons specified in the prior NOD issued in March of 1996. Transcript, S.Zappe at pp. 2377 - 78.

13. In the fact sheets for the draft and revised draft permit, NMED set forth the reasons supportive of NMED’s permit condition prohibiting the management, storage and disposal of RH mixed waste at WIPP. AR No. 980542 (May 15, 1998 Fact Sheet); AR No. 981134 (November 13, 1998 Fact Sheet) and RP No. 14 (December 9, 1998 Supplemental Fact Sheet).

14. In written public comments submitted on December 24, 1998, the Applicants concede that the WAP procedures cannot be applied to RH waste. RP, No. 15 (Applicants’ Comment Page 4 of 13
No. 167 (headspace gas sampling procedures designed for CH waste cannot be performed in a glovebox, which is required for handling RH waste) and Comment No. 177 (a permit modification must be obtained to add RH TRU-mixed waste characterization methods)).

15. In written public comments submitted on December 24, 1998, the Applicants’ contend that the RH waste prohibition conflicts with the WIPP Land Withdrawal Act (LWA), unlawful under RCRA and HWA; and created logistical problems, which threatened WIPP’s mission. RP, No. 36, Applicants’ Executive Summary No. 1.1.3 (resubmittal of Comment No. 177).

16. In written public comment submitted on January 19, 1999, the Applicants resubmitted their objections, but suggested that their “concerns ... will be adequately addressed” if NMED took the following steps:

(1) included the RH Bay as an area in the Waste Handling Building Unit;

(2) authorized modification of the RH Bay;

(3) deleted the RH waste prohibition from the Treatment, Storage and Disposal Facility Waste Acceptance Criteria, the WAP, and Permit Attachments B1-B6 and M-M2; and

(4) authorized the Applicants to store, manage, and dispose TRU waste if the Applicants obtained a permit modification for RH waste characterization methods, and the storage and management of RH waste in the RH Bay.

RP, No. 36, Executive Summary 1.1.3 (resubmittal of Comment 177).
17. At the public hearing, NMED presented written testimony setting forth detailed and substantial support that Applicants had failed to provide any technical information supporting their assertion that CH waste characterization methodologies apply to RH waste as necessary to approve a waste analysis plan under 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13) and thus, the ability to safely store and dispose of RH waste at WIPP. NMED’s Exhibit A (RH Waste Prohibition) at pg. 3 - 4. See also NMED’s Exhibit I (Response to Comment, January 18, 1999, Module I.A).

18. Applicants permit application failed to address numerous critical technical questions regarding RH waste characterization. NMED’s Exhibit A (RH Waste Prohibition) at pg. 3 - 4. NMED provided a non-exhaustive list of deficiencies stating:

- The Applicants failed to present evidence supporting their assertion that CH waste characterization techniques are applicable to RH waste;
- The Applicants failed to explain the application of radiographic analysis to lead-shielded RH waste containers;
- The Applicants failed to describe the application of core technology to RH waste;
- The Applicants failed to adequately address whether modifications to CH techniques would be required for use in radiological containment areas;
- The Applicants failed to address the need for additional equipment, the likelihood of longer periods of time and increased analytical costs, and radiological safety and secondary waste generation issues associated with RH waste characterization;
- The Applicants failed to address potential problems with RCRA analytical methods for RH waste, such as interference, gas generation, and other method limitations;
- The Applicants failed to describe the procedures for acquiring representative samples of RH waste, given the applicable radiation protection requirements for...
personnel; and

• The Applicants failed to describe the QA/QC requirements for sampling and analysis of RH waste (e.g., the accuracy and precision associated with samples collected in compliance with ALARA principles; the QC criteria applicable to data collected by methods subject to sampling and analytical limitations)

_id._ at 3.

19. NMED presented oral and written testimony that the Applicants failed to provide any information regarding procedures to characterize RH waste in response to NMED’s prior Notice of Deficiency. TR, S. Zappe at Pp. 2377 -78 and NMED’s Exhibit A (RH Waste Prohibition) pg. 2 and (Statutory and Regulatory History) at pg. 7.

20. NMED presented written testimony that based upon the deficient application and failure to provide necessary information, the Department must conclude that the Applicants do not have the capability to characterize RH TRU-mixed waste in accordance with the WAP as required under 20 NMAC 4.1.500 (incorporating 40 CFR § 264.13). _Id._ at pp. 1 -7.

21. NMED provided written testimony addressing each of the Applicants’ contentions that Permit Condition II.C.h. conflicts with the WIPP Land Withdrawal Act (LWA), may be unlawful under RCRA and HWA and created logistical problems, which threatened WIPP’s mission. NMED concluded that Applicants’ concerns were not supportable. In The HWA and regulations do allow the management, storage or disposal of RH mixed waste unless the permit application is approvable and satisfies the requirements of 20
NMAC 4.1.500 and .900 (incorporating 40 CFR §§ 264.13 and 270.14(b)(2)). The Applicants’ may seek a permit modification to provide for RH mixed waste. NMED’s written testimony is incorporated herein by reference. RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 5 - 7. See also NMED Exhibit 1 (Response to Comments, Module I.A.).

22. NMED presented written testimony that the RH Bay cannot be modified under the permit application to be in the Waste Handling Building Unit as requested in the Applicants’ comment of January 19, 1999. RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 6 - 7. NMED stated that the public comment period is not the appropriate regulatory mechanism to request substantial modification to the permit application. Id. The public would be precluded from commenting meaningfully on such conditions in violation of HWA public participation requirements because the permit application, draft and revised permit were subject to public notice and comment; not the Applicants’ public comments. See 20 NMAC 4.1.900 (incorporating 40 CFR § 270). 20 NMAC 4.1.901 and RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 6 - 7.

23. The RH Bay modifications includes structural changes which were not subject to public notice, comment or review. Transcript, Applicant Witness, Robert Kehrman at pg. 207.

24. 20 NMAC 4.1.900 (incorporating 40 CFR § 270.23(a)(2)) requires the permit application to provide “[d]etailed plans . . . describing how the unit will be . . . constructed, operated,
maintained, monitored . . . to comply with the requirements of § 264.601 and § 264.602."

25. In order for NMED to consider the proposed changes, the Applicants should have modified the Application to submit detailed engineering design drawings, design standards, construction and material specifications, structural calculations, and quality assurance/quality control procedures as required under 20 NMAC 4.1.900 (incorporating 40 CFR § 270.23(a)(2)). RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 6 - 7

Further, the Applicants’ late disclosure of the proposed changes precluded NMED from thoroughly reviewing the information, requesting additional information, as necessary, and making a completeness determination. See 20 NMAC 4.1.900 (incorporating 40 CFR § 270.10(c)). RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 6 - 7

26. Applicants did not submit any certification or professional engineer design drawings to support NMED approval of the RH Bay under the permit application to be in the Waste Handling Building Unit as part of the Waste Handling Unit. Transcript, Applicant Witness, Robert Kehrman, pg. 207.

27. NMED’s determination that the RH Bay cannot be modified as an area within the Waste Handling Building Unit does not preclude the Applicants from implementing the proposed change in the future. RP, NMED’s Exhibit A (RH Waste Prohibition) at pp. 6 - 7. There are clear regulatory processes for modifying a final permit under the HWA and regulations. NMSA 1978, § 74-4-4.2.H and 20 NMAC 4.1.900 (incorporating 40 CFR §§
270.14(a) and 270.42).

28. **NMED's determination to prohibit RH mixed waste at WIPP under the HWA permit at WIPP is supported by several commentors in written and oral public comment, including the following parties: the New Mexico Attorney General (NMAG), the Environmental Evaluation Group (EEG), Southwest Research and Information Center (SWiC), Concerned Citizens For Nuclear Safety (CCNS) and CARD. See NMED Exhibit 1 (Response to Comments, Written - Module II.C.3.h and Oral (Technical Comment AA.2-RN.2 - Robert Neill, EEG, Comment BB.2-DR.5, D.Reade, CARD).** For instance, EEG concurs that the Application failed to "provide detailed discussion of the RH-TRU waste characterization efforts by the generators and/or storage sites." RP, No. 45 at pg.6.

EEG further notes that DOE contractors (Bild, 1994) have long recognized the need for new facilities for RH waste characterization, but that the Applicant do not expect to construct such facilities for years in the future. Id.

29. **NMED's determination that the permit application is deficient to support a modification to include the RH Bay as part of the waste handling building was supported by several parties including NMAG, SRIC and CCNS. See Exhibit 1 (Response to Comments, January 19, 1998 - Permit Condition II.C.3.h.).**
B. CONCLUSION OF LAW

1. Based upon findings of fact 1 through 5, the NMED Secretary cannot approve a final HWA permit to manage, store or dispose RH mixed waste unless the Applicants submit a permit application containing all necessary information under 20 NMAC 4.1.500 (incorporating 40 CFR §§ 264.13(a) and (b)) including “a detailed chemical and physical analysis of a representative sample of waste and an analysis which, at a minimum, contains all the information which must be known to treat, store or dispose” RH mixed waste at WIPP. NMSA 1978, § 74-4-4.2.A (Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(2)).

2. Based upon findings of fact 1 through 20, the Applicants’ permit application was deficient and failed to contain the necessary information regarding detailed waste characterization procedures and a detailed chemical and physical analysis for the safe management, storage and disposal of RH mixed waste at WIPP as required under 20 NMAC 4.1.500 (incorporating 40 CFR §§ 264.13(a) and (b)). NMSA 1978, § 74-4-4.2.C (Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(2)).

3. Based upon findings of fact 1 through 20, NMED’s determination to prohibit the management, storage or disposal of RH mixed waste at WIPP under the final HWA permit is reasonable, supported by substantial evidence, and in accordance with law, necessary due to the failure of Applicants to provide NMED an adequate permit application with an
approvable waste analysis plan (WAP) that provided sufficient waste characterization information for RH mixed waste and an adequate chemical and physical analyses with all the information which must be known to treat, store or dispose of RH mixed waste properly in accordance with 20 NMAC 4.1.500 and .900 (incorporating 40 CFR §§ 264.13(a) (b) and 270.14(b)(2)). NMSA 1978, §74-4-4.2.C (Repl. Pamp. 1993).

4. Based upon findings of fact 1 through 21, Permit Condition II.C.3.h does not violate the WIPP LWA and, consistent with the HWA and regulations, is supportable on the ground that the HWA and regulations do not allow for the management, storage or disposal of RH mixed waste at WIPP unless the permit application satisfies the requirements of 20 NMAC 4.1.500 and .900 (incorporating 40 CFR §§ 264.13 and 270.14(b)(2)). See also RP, NMED's Exhibit A (RH Waste Prohibition) pp. 5 - 7.

5. Based upon findings of fact 1 through 29, Applicants have not met their burden in challenging NMED's determination to impose Permit Condition II.C.3.h and presenting substantial evidence that this condition is unreasonable or inconsistent with the HWA. See 20 NMAC 901.A.E.6 and 20 NMAC 1.4.400.A.

6. Based upon findings of fact 22 through 29, NMED's determination to not incorporate Applicants' suggested revisions to the final HWA permit is reasonable and in accordance with the HWA and regulations.
A. MODULE II

3. MISCERTIFICATION

A. FINDINGS OF FACT

1. The miscertification rate is the percent of radiographed waste containers that are found, through subsequent visual examination, to be incorrectly identified with respect to waste acceptance criteria. TR, C. Walker, p. 2730, lines 5-9.

2. The miscertification rate is used to determine the percent of radiographed waste containers which are subject to visual examination. TR, C. Walker, p. 2730, lines 10-13.

3. The miscertification rate is used as a quality control check on the accuracy of radiography results. TR, C. Walker, p. 446, lines 17-25 and p. 447, lines 1-2.

4. According to the requirements of the revised Draft Permit, a higher miscertification rate requires a higher rate of visual examination of waste containers to confirm the radiography results. TR, C. Walker, p. 2730, lines 14-18.

5. With respect to miscertification, the Applicants proposed the following language in their WIPP RCRA Part B Permit Application:

As a Quality Control check on radiography, a statistically selected portion of the
certified waste containers must be opened and visually examined. The data from visual examination shall be used to verify the matrix parameter category and waste material parameter weights as determined by radiography.

The data obtained from the visual examination must also be used to determine, with acceptable confidence, the percentage of miscertified waste containers. Miscertified containers are those that radiography indicates meet the Waste Isolation Pilot Plant Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

Experience at the Idaho National Engineering Laboratory indicates that two-percent of the radiography-certified waste containers have been miscertified when compared to the results of visual examination (EG&G 1994). Participating sites must use this historical miscertification rate to calculate the number of waste containers that must be visually examined. The miscertification rate must be determined each year based on results of certification activities over a minimum of 12 months.

RP No. 5, AR No. X (WIPP RCRA Part B Permit Application, Revision 6, Appendix C6, p. C6-1).

6. The revised Draft Permit adopted the Applicants language with some revision. The revised Draft Permit states:

As a Quality Control check on the radiographic examination of waste containers, a statistically selected portion of the certified waste containers must be opened and visually examined. The data from visual examination shall be used to verify the matrix parameter category, waste material parameter weights, and absence of prohibited items as identified in Attachment B, Section B-1C, as determined by radiography.

The data obtained from the visual examination shall also be used to determine, with acceptable confidence, the percentage of miscertified waste containers from the radiographic examination. Miscertified containers are those that radiography indicates meet the Waste Isolation Pilot Plant Treatment, Storage, and Disposal Facility Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

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Previous evaluation of the miscertification rate of radiography at the Idaho National Engineering Laboratory indicates that two-percent of the radiography-certified waste containers have been miscertified when compared to the results of visual examination (EG&G 1994). Participating sites shall use this historical miscertification rate to calculate the number of waste containers that shall be visually examined if a site specific historical miscertification rate has not been established. The miscertification rate shall be determined each year based on results of certification activities at the generator/storage site over a minimum of 12 months. Table B2-1 provides the number of waste containers that shall be visually examined for several miscertification rates and waste container population sizes using a hypergeometric sampling approach.


7. NMED proposes, based on testimony and comments received at the public hearing, to amend the language of Attachment B2 concerning miscertification rates for the final HWA Permit. The proposed amendments from the revised Draft Permit are noted in redline/strikeout as follows:

As a Quality Control check on the radiographic examination of waste containers, a statistically selected portion of the certified waste containers must be opened and visually examined. The data from visual examination shall be used to verify the matrix parameter category, waste material parameter weights, and absence of prohibited items as identified in Attachment B, Section B-1.C, as determined by radiography.

The data obtained from the visual examination shall also be used to determine, with acceptable confidence, the percentage of miscertified waste containers from the radiographic examination. Miscertified containers are those that radiography indicates meet the Waste Isolation Pilot Plant Treatment, Storage, and Disposal Facility Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

Previous evaluation of the miscertification rate of radiography at the Idaho National Engineering Laboratory indicates that two-percent of the radiography-certified waste containers have been miscertified when compared to the results of visual examination (EG&G 1994). Participating sites shall initially use this
historical an eleven-percent (11%) miscertification rate to calculate the number of waste containers that shall be visually examined if until a site-specific historical miscertification rate has not been established. Sites may establish a site-specific miscertification rate by characterizing a waste stream or waste stream lot of no less than fifty containers at the initial 11% miscertification rate. The results of this initial characterization shall then serve as the site-specific miscertification rate until reassessed annually as described below.

The site-specific miscertification rate shall be determined each year based on results of certification activities at the generator/storage site over a minimum of 12 months applied initially to each waste stream to determine the number of containers requiring visual examination, as specified in Table B2-1. However, a waste stream-specific miscertification rate shall be determined when either six months have passed since radiographic characterization commenced on a given waste stream, or at least 50% of a given waste stream has undergone radiographic characterization, whichever occurs first. The waste stream shall then be subject to the visual examination requirements of this reevaluated waste stream-specific miscertification rate to ensure that the entire waste stream is appropriately characterized. Table B2-1 provides the number of waste containers per waste stream that shall be visually examined for several various miscertification rates and waste container population sizes using a hypergeometric sampling approach. Sites shall use a miscertification rate of 1% for any waste stream-specific miscertification rate calculated to be less than 1%.

The site-specific miscertification rate shall be reassessed annually by calculating a drum-weighted average of all historic waste stream-specific miscertification rates. Each waste stream-specific miscertification rate shall be rounded off to the nearest integer value before being used to calculate the new site-specific miscertification rate. Sites shall use a miscertification rate of 1% for any site-specific miscertification rate calculated to be less than 1%.

See, Exhibit 3, infra, NMED’s proposed final HWA Permit.

8. NMED proposes, based on testimony and comments received at the public hearing, to amend a table of Attachment B2 for the proposed Final Permit concerning miscertification rates for the final HWA Permit. The proposed amendments from the revised Draft Permit are noted in redline/strikeout provided in the proposed Final Permit, Table B2-1. See, Exhibit 3, infra, NMED’s proposed final HWA Permit.
9. Before the owner or operator of a facility stores and disposes hazardous waste, the owner or operator must obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum, the analysis must contain all the information which must be known to store or dispose the waste in accordance with 40 CFR Part 264. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)).

10. The waste analysis must be repeated as necessary to ensure that it is accurate and up to date. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(3)).

11. The owner or operator must develop and follow a written waste analysis plan which describes the waste analysis procedures. At a minimum, the plan must specify, inter alia:
   a. The test methods which will be used to test for these parameters; and
   b. The sampling method which will be used to obtain a representative sample of the waste to be analyzed.

   20 NMAC 4.1.500 (incorporating 40 CFR §264.13(b)(2) & (3)).

12. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment. 20 NMAC 4.1.500 (incorporating 40 CFR §264.601).
13. Each hazardous waste act permit shall include permit conditions necessary to achieve compliance with the hazardous waste act and regulations. 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(1)).

14. Each hazardous waste act permit for a facility that stores or disposes hazardous waste shall contain terms and conditions necessary to protect human health and the environment. 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(2)).

15. Hazardous waste may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. NMSA 1978 §74-4-3(l)(2) (Repl. Pamp. 1993).

16. Disposal of hazardous waste in or on the land without careful planning and management can present a danger to human health and the environment. 42 U.S.C.A. §6901(b)(2).

17. The placement of inadequate controls on hazardous waste management will result in substantial risks to human health and the environment. 42 U.S.C.A §6901(b)(5).

18. With respect to the importance of waste analysis in accomplishing the protection of human health and the environment, the Environmental Protection Agency (EPA) states:

   The cornerstone of the RCRA program, and the focus on this guidance manual, is the ability of facility personnel to identify properly, through waste analysis, all wastes that they generate, treat, store, or dispose of.
19. The EPA further states:

Waste analysis, therefore, is the pivotal activity that you must conduct properly to ensure that your facility is in compliance with the myriad applicable regulations for proper waste treatment, storage, or disposal.


20. The Applicants proposed a baseline miscertification rate of 2 percent based on 1994 characterization information from the Idaho National Engineering Laboratory. RP, No. 5, AR No. X (WIPP RCRA Part B Permit Application, Revision 6, Appendix C6, p. C6-1).


22. Characterization information from the Los Alamos National Laboratory demonstrates a miscertification rate for that Site of 11 percent. TR, K. Hunter, p. 688, lines 18-23.

23. The calculation of visual examination to confirm radiography results based on a percent-basis of waste shipped from a site for an entire year, instead of on a waste-stream basis, could result in storage or disposal of hazardous waste at WIPP without confirmatory visual examination of radiography results for a specific waste stream. TR, K. Hunter, p.
24. The Treatment, Storage and Disposal Facility Waste Acceptance Criteria (TSDF WAC) specified in the revised Draft Permit prohibits the following items at WIPP: liquids; pyrophoric materials; non-mixed hazardous waste (hazardous waste not containing transuranic waste); chemically incompatible wastes; explosives and compressed gases; wastes containing equal to or greater than 50 parts per million polychlorinated byphenyls; ignitable, corrosive and reactive wastes; remote-handled transuranic wastes; waste that has not undergone headspace gas sampling and analysis; wastes which have not undergone either radiography or visual examination; or waste which is preceded by a Waste Stream Profile Form. RP. No. 5, AR No. 981134 (revised Draft Permit, Permit Module II, Permit Condition II C.3, p. II-5).

25. Applying a miscertification rate for visual examination of radiographed waste containers which is lower than the actual miscertification rate may result in the storage and disposal of waste at WIPP which is inadequately characterized or which contains prohibited items under the TSDF WAC. TR, D. Hancock, p. 3585, lines 21-25 and p. 3586, lines 1-8.

26. The Applicants have not established a maximum percentage of miscertification which would cause the cessation of storage or disposal activities from a generator/storage site to WIPP. TR, K. Hunter, p. 539, lines 2-10.
27. Citizens Against Radioactive Dumping, a Party to this proceeding, offered the following testimony concerning miscertification:

   The assumption should not be, without evidence to the contrary, that radiography will only be wrong 2 percent of the time. One hundred percent of the containers should be visually examined to verify radiography, at least for the first year.


28. Southwest Research and Information Center, a Party to this proceeding, offered the following testimony concerning miscertification:

   We believe that the miscertification rate in the final permit should require that a miscertification rate be established based on the specific performance of the generator site. If there is going to be a historical baseline used, it should be the highest miscertification rate at any generator site so that we start with trying to establish a margin of error or margin of safety that actually reflects actual historic conditions at the generator sites.

   TR, D. Hancock, p. 3584, lines 24-25 and p. 3585, lines 1-7.

29. Concerning the 12 month time period proposed in the revised draft permit before the application of current miscertification rates for a generator/storage site, Southwest Research and Information Center testified as follows:

   If waste is going to be allowed to be shipped from any site based on some kind of previous rate, that's why that initial rate needs to be higher, you know, the highest historic experience, and it seems to me that 12 months is too long. It needs to be a much shorter period of time to avoid the circumstances that we have discussed, where you have – where a site has certified and shipped waste to WIPP based on a wrong miscertification rate, which means in that circumstance you could have wastes that are not adequately characterized, and especially important, you could have drums of waste with prohibited items actually having been stored or disposed of at the facility.

30. The New Mexico Attorney's General Office provided written comments to the revised Draft Permit supporting a higher miscertification rate for generator/storage sites because of the higher miscertification rate found at Los Alamos National Laboratory in the characterization of Waste Stream TA-5-43, Lot No. 01. RP No. 57.

31. Concerned Citizens for Nuclear Safety and the Southwest Research and Information Center provided written comments to the revised Draft Permit supporting a higher miscertification rate because of the higher miscertification rate found at Los Alamos National Laboratory in the characterization of Waste Stream TA-5-43, Lot No. 01. RP No. 34.

32. In light of the evidence and comments submitted concerning the higher miscertification rates found at other generator/storage sites, no Party or Commentor provided comments that the miscertification rate should remain the 2% rate proposed in the WIPP RCRA Part B Permit Application. TR, RP.
B. CONCLUSIONS OF LAW

1. Based on Findings of Fact 1-32, NMED's proposed final HWA Permit condition regarding the miscertification rate is a condition necessary to protect human health or the environment by ensuring that waste which is managed, stored or disposed at WIPP is properly characterized and does not contain any prohibited or incompatible items, as required by 20 NMAC 4.1.500 and 900 (incorporating 40 CFR §§264.13, 264.601, 264.602, 270.32(b)(1) and 270.32(b)(2)). 20 NMAC 4.1.901.A.8 and NMSA 1978 §74-4-4.2(c) (Repl. Pamp. 1993).

2. Based on Findings of Fact 1-32, evidence and comments provided during the public comment period demonstrated the miscertification rate proposed in the WIPP RCRA Part B Permit Application was deficient because it might allow the Permittees to manage, store or dispose at WIPP improperly characterized hazardous waste, as prohibited by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)).

3. Based on Findings of Fact 1-32, NMED's proposed final HWA Permit condition regarding the miscertification rate is reasonable, supported by substantial evidence and in accordance with law, necessary to ensure the Permittees obtain a detailed physical analysis of a representative sample of the waste, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)).
4. Based on Findings of Fact 1-32, NMED’s proposed final HWA Permit condition regarding the miscertification rate is reasonable, supported by substantial evidence and in accordance with law, necessary to confirm the waste analyses are repeated as necessary to ensure the analyses’ are accurate and up to date, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(3)).

5. Based on Findings of Fact 1-32, NMED’s proposed final HWA Permit condition regarding the miscertification rate is reasonable, supported by substantial evidence and in accordance with law, necessary to ensure the waste analysis plan has written procedures for test methods used to test for physical waste parameters and sampling methods which will be used to obtain a representative sample of the waste to be analyzed, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(b)(2) & (3)).

6. Based on Findings of Fact 1-32, NMED’s proposed final HWA Permit condition regarding the miscertification rate is reasonable, supported by substantial evidence and in accordance with law, necessary to protect human health and the environment by ensuring that mis-characterized hazardous waste or prohibited items are not managed, stored or disposed at WIPP, as required by 20 NMAC 4.1.500 & 900 (incorporating 40 CFR §264.601 & §270.32(b)(2)).

7. Based on Findings of Fact 1-32, NMED’s proposed final HWA Permit condition regarding the miscertification rate is reasonable, supported by substantial evidence and in
accordance with law, necessary to achieve compliance with the hazardous waste act and regulations by ensuring that the Permittees comply with the waste analysis requirements of 20 NMAC 4.1.500 (incorporating 40 CFR §264.13), as required by 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(1)).

8. Based on Findings of Fact 1-32 and Exhibit 1 (attached), the record provides substantial evidence in support of the miscertification language proposed by NMED for the final HWA Permit. Joab, Inc. v. Espinosa, 116 N.M. 554 (N.M. App. 1993), cert. denied.

9. Based on Findings of Fact 1-32 and Exhibit 1 (attached), NMED has duly considered all public comments received during the public comment, has specified which provisions of the Draft Permit have been changed and has provided reasons for these changes in accordance with 20 NMAC §§4.1.901A.7 and 901.A.9.

10. Based on Findings of Fact 1-32 and Exhibit 1 (attached), no Party of Commentor has met their burden in challenging NMED’s proposed final HWA Permit condition regarding the miscertification rate by presenting substantial evidence that this condition is unreasonable or inconsistent with the Hazardous Waste Act. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
A. MODULE II

4. WIPP WASTE INFORMATION SYSTEM

A. FINDINGS OF FACT

1. The WIPP Waste Information System (WWIS) is an electronic database that contains information and data related to the characterization, certification and shipment of waste destined for storage and disposal at WIPP. RP No. 36 (Applicants' January 19, 1999 Comment 266, p. 20).

2. The WWIS is the primary vehicle for transmitting waste characterization information and for conducting container-by-container review of waste characterization data. RP No. 36 (Applicants' January 19, 1999 Comment 266, p. 20).

3. Revision 6.5 of the Application contained a proposed waste analysis plan (WAP), which described the procedure for transmitting waste characterization information via the WWIS:

   Data will be transmitted by hard copy or electronically (provided a hard copy is available on demand) from the data generation level to the generator site TRU mixed waste characterization project level... These data will also be input electronically into the WWIS... Summarized characterization information will be reported on a waste stream basis and transmitted by hard copy or electronically to the WIPP Waste Operations when requested.

RP No. 5, AR No. X (WIPP RCRA Part B Permit Application, Chapter C, page C-35).
4. The Application further proposed that "testing, sampling, and analytical data will be reported for each waste container" from the data generation level to the generator site TRU mixed waste characterization project level, and that "these data will also be input electronically into the WWIS".

RP No. 5, AR No. X (WIPP RCRA Part B Permit Application, Chapter C, page C-35), emphasis added; RP, NMED’s Exhibit A (WIPP Waste Information System) pg. 2.

5. The Application also states only "summarized characterization information will be reported on a waste stream basis... to the WIPP Waste Operations when requested."

RP No. 5, AR No. X (WIPP RCRA Part B Permit Application, Chapter C, page C-35), emphasis added; RP, NMED’s Exhibit A (WIPP Waste Information System) pg. 2.

6. The Applicants further proposed that "records related to waste characterization sampling and analysis activities at the generator sites will be maintained in the testing, sampling, or analytical facility files or site project files for those facilities located on sites." RP No. 5, AR No. X (WIPP RCRA Part B Permit Application, Chapter C, page C-36); RP, NMED’s Exhibit A (WIPP Waste Information System) pg. 2.

7. In the revised Draft Permit, NMED determined to impose Permit Condition II.C.1.g, which states:
WIPP Waste Information System (WWIS) database - the Permittees shall provide the Secretary access to the WWIS database as necessary to determine compliance with the WAP. The WWIS shall meet all requirements presented in Section B-4b(1)(i) of the WAP, Permit Attachment B, prior to acceptance of TRU mixed waste. The Secretary's access to the WWIS shall be direct, read-only (via modem or Internet) to all query and reporting functions of the Characterization, Certification, Shipping, and Inventory modules of the WWIS database.

RP No. 5; AR No. 981134 (Revised Draft Permit Condition II.C.1.g).

8. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)) requires the owner or operator of a hazardous waste management facility to obtain a detailed chemical and physical analysis of a representative sample of the wastes before those wastes are stored or disposed at the facility.

9. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)) further requires, at a minimum, the analysis to contain all the information which must be known to treat, store, or dispose of the waste.

10. 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(a)) requires the owner or operator of a hazardous waste management facility to maintain a written operating record at the facility.

11. 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)) requires the facility to maintain and record until closure of the facility records and results of waste analyses and waste determination performed as specified in 40 CFR §264.13.
12. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(4)) requires the owner or operator of an off-site facility to inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

13. As a result of the process proposed in the WIPP RCRA Part B Permit Application, all waste determinations, waste analyses and their respective records and results required under 20 NMAC 4.1.500 (incorporating 40 CFR §§264.13(a)(1) and 264.73(b)(3)) will be performed, and the original paper copies will remain, at the generator/storage sites, most of which are outside the State of New Mexico. TR, S. Zappe, pg. 2388, lines 2-22; RP No. 5, AR No. X; RP, NMED's Exhibit A (WIPP Waste Information System) pg. 2.

14. The WIPP RCRA Part B Permit Application proposes to send only summaries of waste characterization to WIPP. TR, S. Zappe, pg. 2388, lines 2-22; RP No. 5, AR No. X; RP, NMED's Exhibit A (WIPP Waste Information System) pg. 2.

15. As presented in the WIPP RCRA Part B Permit Application, the only container-specific data readily available to the Permittees and NMED will be the information input electronically into the WWIS. RP No. 5, AR No. X; RP, NMED's Exhibit A (WIPP Waste Information System) pg. 2.
16. The Applicants did not propose to furnish NMED with written records of all waste characterization activities, including waste analyses and determinations, even though these original records are required to be available under the Permit. NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)); RP No. 5, AR No. X (Permit Application, Chapter C, page C-35); NMED’s Exhibit A (WIPP Waste Information System) pg. 3.


18. Records and results of waste analyses and waste determinations are important and necessary to determine whether the Permittees are complying with the requirements of the Permit. TR, S. Zappe, pg. 2387, lines 14-22.

19. The WWIS is the primary vehicle for transmitting waste characterization information and for conducting container-by-container review of waste characterization data. RP No. 36 (Applicants’ January 19, 1999 Comment 266, p. 20).
20. Unlike many other hazardous waste management facilities, the Application for WIPP provides that nearly all waste characterization activities will be performed at out-of-state locations, where the original data exists and will be electronically input into the WWIS. NMED's Exhibit A (WIPP Waste Information System) pg. 3.

21. Unlike other treatment, storage or disposal facilities, the Applicants have not proposed to perform confirmatory (i.e., "fingerprint") analysis of incoming waste shipments at WIPP. TR, K. Hunter, p. 692, lines 10-18. NMED's Exhibit A (WIPP Waste Information System) pg. 2.

22. If NMED does not have access to the WWIS as specified in Permit Condition II.C.1.g, then NMED will be required to travel out-of-state to review original data of waste analysis results to ensure compliance with the WAP. TR, S. Zappe, pg. 2391, lines 1-12; NMED's Exhibit A (WIPP Waste Information System) pg. 3.

23. The WWIS database is a record and includes results of waste analyses and waste determinations because the WWIS database contains information and data related to the characterization, certification and shipment of waste destined for management, storage and disposal at WIPP. 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)); TR, S. Zappe, pg. 2387, lines 9-13; RP, NMED's Exhibit A, WIPP Waste Information System, p. 3; RP No. 36 (Applicants' January 19, 1999 Comment 266, p. 20).


26. The Applicants prefer providing NMED with only Remote Site Query access to the WWIS. RP No. 15 (Applicants’ December 22, 1998 Comment 223, pg. 175); RP No. 36 (Applicants’ January 19, 1999 Comment 266, pg. 21).

27. The Applicants objected to Permit Condition II.C.1.g on the ground that it imposed an “unnecessary permit condition concerning NMED access to WWIS.” RP No. 36 (Applicants’ January 19, 1999 Comment 266, pg. 21).

28. The Applicants have concurred with NMED regarding NMED’s authority and necessity to read only access to the WWIS. RP No. 15 (Applicants’ December 22, 1998, Comment 223, pg. 175).

29. With respect to the Applicants’ comment not to use the WWIS for information concerning the disposal location of hazardous waste at WIPP, NMED proposes
the following revisions to be incorporated into the proposed final HWA Permit.

Changes from the revised Draft Permit are indicated in redline/strikeout:

The WWIS will generate the following:

- Container Emplacement Report

This report will be added to the operating record as an indication of the quantities of waste, date of emplacement, and location of authorized containers or container assemblies in the repository. The Permittees will document the specific panel room or drift that an individual waste container is placed in as well as the row/column/height coordinates location of the container or container assembly. This report will be generated on a weekly basis. Locations of containers or container assemblies will also be placed on a map separate from the WWIS. Reports and maps that are included as part of the operating record will be retained at the generator/storage WIPP site, for the life of the facility.

See Exhibit 3, Permit Attachment B, Pg. 8, lines 29-39 and Exhibit 1, NMED's Response to Written Public Comment Submitted on the November 13, 1998 Revised Draft Permit, Module II.

30. With respect to the Applicants' comment to delete certain data fields of the WWIS, NMED proposes the following revisions to be incorporated into the proposed final HWA Permit. Changes from the revised Draft Permit are indicated in redline/strikeout and are specified in Attachment B, Table B-8, pp. 49-50 of the proposed final HWA Permit (Exhibit 3). See Exhibit 1, NMED's Response to Written Public Comment Submitted on the November 13, 1998 Revised Draft Permit, Module II; Exhibit 3 NMED's proposed final HWA Permit.

31. NMED cannot incorporate the Applicant's comment regarding restriction of access to the WWIS to Remote Site Query access only because the Applicants did not provide any justification to this restriction in access, because NMED has not required access to the administrative portion of the database and because NMED believes full access as specified in Condition II.C.1.g is required in order to meet the applicable regulatory requirements. 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)); RP No. 15 (Applicants' December 22, 1998, Comment 223, pg. 175); See, Exhibit 1, NMED's Response to Written Public Comment Submitted on the November 13, 1998 Revised Draft Permit, Module II.
B. CONCLUSIONS OF LAW

1. Based on Findings of Fact 1-23 and 29, the proposed final HWA Permit Condition II.C.1.g and associated language in Attachment B regarding NMED access to the WWIS is a condition necessary to ensure proper waste characterization through maintenance and inspection of records and results of waste analyses and waste determinations, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §§264.13, 264.73(a), 264.73(b)(3) and 264.601). 20 NMAC 4.1.901.A.8 and NMSA 1978 §74-4-4.2(c) (Repl. Pamp. 1993).

2. Based on Findings of Fact 1-23, the WWIS database will contain records and results of waste analyses and waste determinations as defined by 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)) because the WWIS database contains information and data related to the characterization, certification and shipment of waste destined for storage and disposal at WIPP.

3. Based on Findings of Fact 1-23, waste characterization information and hazardous waste determinations contained in the WWIS, as specified in NMED’s proposed final HWA Permit Condition II.C.1.g, are required records which must be furnished upon request and made available at all reasonable times for inspection by authorized NMED personnel pursuant to 20 NMAC 4.1.500 (incorporating 40 CFR §264.74(a)) and NMSA 1978 §§74-4-4(A)(5)(a) and 74-4-4.3(A)(1) (Repl. Pamp. 1993).

4. Based on Findings of Fact 1-23, NMED access to the WWIS as proposed in the WIPP RCRA Part B Permit Application was deficient because it failed to provide NMED necessary access to records and results of waste analyses and waste determinations in order to ensure that waste is characterized in compliance with the Waste Analysis Plan, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §§264.13, 264.73(a), 264.73(b)(3) and 264.601).

5. Based on Findings of Fact 1-23, NMED’s proposed final HWA Permit condition regarding access to the WWIS is reasonable, supported by substantial evidence and in accordance with law, necessary to review and inspect required records and results of waste analysis and waste determinations for wastes which will be managed, stored and disposed at WIPP. 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)).

6. Based on Findings of Fact 1-23, NMED’s proposed final HWA Permit condition regarding access to the WWIS is reasonable, supported by substantial evidence and in accordance with law, necessary to determine compliance with the Waste Analysis Plan. 20 NMAC 4.1.500 (incorporating 40 CFR §§264.13(a)(1) and
Based on Findings of Fact 23-31 and Exhibit 1 (attached), NMED has duly considered all public comments received during the public comment period, has specified which provisions of the Draft Permit have been changed and has provided reasons for these changes in accordance with 20 NMAC §§4.1.901.A.7 and 901.A.9.

Based on Findings of Fact 1-31 and Exhibit 1 (attached), no Party or Commentor has met their burden in challenging NMED’s proposed final HWA Permit condition regarding Tentatively Identified Compounds by presenting substantial evidence that this condition is unreasonable or inconsistent with the Hazardous Waste Act. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
A. **MODULE II**

5. **COMPOSITE SAMPLING**

A. **FINDINGS OF FACT**


2. NMED has imposed the permit condition of requiring the collection of cores from soil/gravel and solid TRU-mixed waste for sample preparation and analysis. Permit Condition Module II.2.C.1.b (Attachment B).

3. For the analysis of Volatile Organic Compounds (VOCs), the Applicants must collect either three (3) sub-samples from the vertical axis of the sample core, place the sub-samples in a single sample container, and prepare and analyze that sample or collect a representative core subsection, provided the appropriate SW-846 sample preparation methods and containers are used. NMED's Exhibit A (Composite Sampling).

4. The permit condition for VOC analysis specifies that the three (3) sub-samples must be collected from three (3) separate and randomly selected sampling locations along the vertical axis of the core. See Permit Condition Module II.2.C.1.b (Attachment B).

5. This permit condition allows the Applicants to composite the sub-samples in a single VOC container for analysis. See NMED's Exhibit A (Composite Sampling) at pg. 1.
6. NMED authorized the Applicants to collect samples for semi-volatile, polychlorinated biphenyl, and metals analyses using the same methodology, or by compositing a representative subsection of the core. Id.

7. The objective of the permit condition requiring the collection of three (3) sub-samples for VOC analysis is to increase the representativeness of the sampling process, eliminate inconsistencies in the Applicants’ proposed sampling approach for non-VOC analyses, and create equivalency in the sampling design between VOC and other core sample analyses. Id. at 2 - 3.

8. Composite sampling is a commonly used sampling technique in which multiple random sub-samples of a targeted media are combined to form a single sample of manageable size for analysis. Sample compositing often is desirable because the resulting composite sample is more representative of the chemical characteristics of the entire core than a single, small sample collected somewhere along the core. NMED’s VOC sample collection process is similar to “classic” composite sampling, because a number of samples are collected to form a single sample. Id. at 3 - 4.

9. Incremental sampling is a useful and effective method to obtain a more representative sample of the contents of a waste container, while avoiding the logistical, financial, and safety concerns associated with collecting multiple samples. Id.
10. NMED's permit condition regarding the analysis of VOCs provides a reasonable VOC sampling approach which is consistent with EPA guidance regarding soil/gravel and solid matrix sampling for VOCs, and maximizes the representativeness of the sampling process while minimizing worker exposure and the loss of VOCs from the sample. Moreover, the EPA endorses the composite sample concept. Id. See id.

11. The revised Draft Permit ensures the best approximation of sample representativeness between different sample methods by requiring generator/storage sites to collect core samples in a similar manner, and establishing sample collection requirements that provide an acceptable level of sample representativeness. Id.

12. NMED received public comment regarding sample collection, and believes that the revised Draft Permit should be modified to allow the Applicants to use any sample container that conforms to the specifications for SW-846 Test Methods for VOC soil samples. Several applicable SW-846 Test Methods do not preclude the collection of a representative core subsection, provided the appropriate SW-846 sample preparation methods and containers are used. Therefore, NMED recommends that the revised draft permit be modified to allow the use of containers other than forty (40) milliliter vials, provided that these containers do not prevent the application of the SW-846 Test Methods. See NMED's Exhibit 1 (Response to Comments - January 18, 1999 (Module II.2.C.1.b (Attachment B) and NMED's Exhibit A (Composite Sampling).

13. NMED has considered public comment and believes that the revised Draft Permit should be modified to allow the Applicants to use any sample container that conforms to the
specifications for SW-846 Test Methods for VOC soil samples. Several applicable SW-846 Test Methods do not preclude the collection of a representative core subsection, provided the appropriate SW-846 sample preparation methods and containers are used. Therefore, NMED recommends that the revised draft permit be modified to allow the use of containers other than forty (40) milliliter vials, provided that these containers do not prevent the application of the SW-846 Test Methods. NMED Exhibit A (Composite Sampling) at pp. 4 - 5.

14. At the public hearing, NMED presented written testimony that the Applicants erroneously assert that the permit condition is an attempt to characterize variability within each waste container. NMED does not expect the Applicants to characterize the variability within each waste container. If NMED had intended to require the Applicants to characterize variability, the revised draft permit would have (1) required the separate collection and reporting of multiple samples for all analyses; (2) eliminated the compositing of a representative core section for non-VOC analyses; and (3) established provisions for the evaluation and assessment of data variability within each waste container. The revised draft permit does not contain any of these conditions. In fact, the act of compositing a sample eliminates the ability to evaluate variability within a waste container. NMED's Exhibit A (Composite Sampling) pp. 4 - 5.

15. The Applicants incorrectly assert that collecting core sub-samples contradicts the concept of random sample selection. EPA guidance indicates that compositing grab samples from a core is both possible and acceptable. See Description and Sampling of Contaminated Soils: A Field Pocket Guide, (EPA/625/12-91/002).
16. The Applicants incorrectly assert that the EPA does not allow compositing of VOC soil samples. The EPA guidance document “Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies” (EPA/600/SR-92/128) states that VOC soil samples can be collected through incremental sampling, which is defined as “the extraction of one or more distinct increments of material for inclusion in the final sample.” NMED has adopted this EPA-endorsed methodology for VOC sampling in the revised draft permit. NMED’s Exhibit A (Composite Sampling) at pp. 4 - 5.

17. NMED believes that careful collection and preparation of composited samples will not bias the VOC analyses. First, any volatile loss during sample collection would be offset by the use of heated purge-and-traps methods that minimize VOC loss during the analytical process. Second, the sampling methodology in the revised draft permit - the collection and placement of three (3) sub-samples in one container without physical mixing - will not cause significant VOC loss. Id.

18. Many methods can be used to collect and prepare composite soil samples without physical mixing, such as the EPA SW-846 Test Methods. As a result, it is not necessary to obtain a physically homogeneous sample in the field. Rather, the sample is composited using EPA SW-846 Test Methods, such as Methods 5021, 5032, and 5035, which composite the sub-samples under controlled conditions which significantly minimize volatile loss. Id.

19. NMED does not believe that the composite VOC soil sampling requirement will impose significant additional costs or sampling delays. The time required to collect three (3) sub-
samples, rather than a single sample, is minimal compared to the other tasks associated with core sampling. Id.

B. CONCLUSIONS OF LAW

1. Based upon findings of fact 1 through 19, NMED determination to impose a permit condition requiring the collection of cores from soil/gravel and solid TRU mixed waste is reasonable and in accordance with the analysis requirements for a representative waste sample in accordance with 20 NMAC 4.1.200 (incorporating 40 CFR Part 261, Appendix I). 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)).

2. Based upon findings of fact 1 through 19, Applicants have not met their burden in challenging NMED's determination to impose a permit condition requiring the collection of cores from soil/gravel and solid TRU mixed waste in presenting evidence that this condition is unreasonable or inconsistent with the HWA. See 20 NMAC 901.A.E.6 and 20 NMAC 1.4.400.A.

3. Based upon findings of fact 1 through 19, NMED's determination to incorporate revisions to the final HWA permit was based upon public comment, reasonable and in accordance with the HWA and regulations.
A. MODULE II

6. FINANCIAL ASSURANCE REQUIREMENTS

A. FINDINGS OF FACT

1. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264 Subpart H) require owners and operators of all hazardous waste facilities to provide financial assurance.

2. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264.140(c)) exempt only states and the federal government from the requirement of providing financial assurance.

3. NMED regulations at 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(15)(16)and(17)) requires owners and operators of all hazardous waste facilities to provide cost estimates for financial assurance.

4. On April 28, 1997 and September 24, 1997, NMED informed Applicants that WID is required to comply with the financial assurance requirements under 20 NMAC 4.1.500 (incorporating 40 CFR Subpart H) for the following reasons: as a private operator, WID is not exempt from financial assurance requirements; Westinghouse’s (owner of WID) history of noncompliance revealed substantial and significant evidence of past environmental violations; and the fact that DOE has relied upon inadequacy of funding as a defense to liability under environmental laws. AR No. 970421 and AR No. 970930.
5. NMED requested that Applicants provide cost estimates for financial assurance in accordance with 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(15)(16) and (17)). AR No. 970930.

6. WID initially opposed NMED's imposition of financial assurance requirements. AR No. 970512 and AR No. 971014.


8. On January 5, 1998, after reviewing and revising Applicants' submittal of cost estimates for financial assurances and other information, NMED issued the completeness determination for Applicants' RCRA Part B Application (Revision 6.5). AR No. 980102.

9. The cost estimates for financial assurance that NMED approved are: $2,018,966.00 for partial closure; $9,840,679.00 for contingency closure; $80,263,644.00 for final closure; and $18,800,615.00 for post closure. Revised Draft Permit Attachment K, Table K1, K2.

10. NMED is not required to approve Applicants' proposed mechanisms for financial assurance as part of these proceedings under 20 NMAC 4.1.500 (incorporating 40 CFR §264.143 & .147), TR, S.Zappe, Pg. 2422.
11. Applicants submitted a proposal that financial assurance be provided by DOE indemnifying WID, or any successor, for closure and post-closure costs and WID providing a declaration of self-insurance. RP No. 36, 1.1.5 Comment 179 of Additional Comments of Applicants on the revised Draft Permit, Pg.4-8. See also, TR, S. Zappe, Pg. 2423.

12. NMED believes the mechanisms for financial assurance that Applicants submitted are inadequate and may be void as a matter of state law. NMED Exhibit 1, August 14, 1998. See also, TR, S. Zappe, Pg. 2420-21.

13. In the fact sheets for the WIPP Draft and revised Draft Permit, NMED provided Applicants notice of the imposed financial assurance requirements and set forth the basis for the imposition for financial assurance requirements upon WID. AR No. 980542 (May 15, 1998 Fact Sheet); AR#981134, RP#1 (November 13, 1998 Fact Sheet) and RP No.10 (December 4, 1999 Supp. Fact Sheet).

14. WID is a private corporation. AR No. 981134, revised Draft Permit Attachment A (Part A Application, Pg. A-9).

15. Because WID is a private corporation, and not a state or federal government entity, NMED imposed financial assurance requirements upon WID under Module II(N),(O),(P),
16. There are strong policy reasons, set forth by EPA and adopted by NMED, for imposing financial assurances: The imposition of financial assurance provide an incentive to operate the facility so as to minimize the costs of closure and post-closure care; it forces operators to consider closure and post-closure costs as part of the overall cost of operating the facility; it assures that the entity benefiting financially from the operation of the facility bears the cost of closure and post-closure. TR, S. Zappe, Pg. 2399-400.

17. On April 28, 1997, NMED requested both DOE and Westinghouse (owner of WID) provide a response regarding financial responsibility and to submit appropriate information necessary to comply with the disclosure requirements of the Hazardous Waste Act (HWA). AR No. 970421.

18. In response to NMED’s request regarding disclosure requirements, Westinghouse provided two separate summaries of their compliance history, one dating from February 9, 1989 until January 7, 1997 for “Government Owned, Contractor Operated” facilities and one from January 5, 1990 until May 8, 1997 for general “Compliance History”. AR No. 970711; see also, Tr, S.Zappe. Pg. 2403.

19. The summaries that Westinghouse provided of their compliance history identified 307 discrete environmental violations. Id.
20. Non-compliance with environmental laws is a relevant factor in determining the amount of financial assurance requirements. TR, S. Zappe, Pg. 2400-01.

21. NMED's decision to require financial assurance requirements upon a private operator such as WID is not dependent upon the operator's history of non-compliance. Even if an operator had no history of non-compliance, NMED would require financial assurance for the important policy reasons set forth above (supra, line 16). Id. at 2401.

22. In its opposition to the imposition of financial assurance requirements WID set forth the following legal arguments opposing the imposition of financial assurance requirements: (1) WID is exempted from such requirements under 20 NMAC 4.1.500 (incorporating 40 C.F.R. §264.140(c)); (2) requiring WID to provide financial assurances is more stringent than the federal regulations and therefore in violation of NMSA 1978 §74-4-4(D); (3) requiring contractors at a major DOE facility to provide financial assurances is unprecedented; and (4) pursuant to the terms of the operating contract, the costs of financial assurances would be passed on to DOE. AR No. 15, Applicants' Comment 179 on the revised Draft Permit, p.77.

23. The clear language of §140(c) only exempts states and the federal government. A plain reading of this language does not include a private operator of a federal facility, because
such an entity is not a state or federal government. NMED Exhibit 1, August 14, 1998. 

see also, TR S. Zappe, Pg. 2392-93.

24. EPA Region 6 does not oppose NMED’s decision to impose financial assurance requirements upon WID. EPA has stated that the imposition of financial assurance requirements is clearly within the states authority and discretion. AR No. 980804 & 971013.

25. New Mexico’s regulations requiring financial assurance are identical to, and not more stringent than, the federal regulations. NMED Exhibit 1, August 14, 1998, see also, TR, S. Zappe, Pg. 2395-2399.

26. In adopting NMED’s regulations for financial assurances, neither the EPA nor the Environmental Improvement Board determined NMED’s regulations for financial assurances to be more stringent than the federal regulations. Id.

27. WIPP is the first federal facility to seek a permit for mixed waste disposal in New Mexico and United States since 1980 or the passage of RCRA. NMED Exhibit 1, August 14, 1998, see also, TR, B. Kerman, Pg. 208, TR, S. Zappe, Pg. 2414-15.

28. No state has had the opportunity to require financial assurance from a private operator at a federal facility for mixed waste disposal. Id.
29. There is precedent of requiring financial assurance from private operators listed as co-permittees at a federal facility. NMED Exhibit 1, August 14, 1998. See also, TR, S. Zappe, Pg. 2414-15. The U.S. Army owned Umatilla Chemical Depot provides precedent of the exemption under § 140(c) not precluding the private contractor from providing financial assurances. Id.

30. WID is required to provide financial assurance even if the cost would be passed onto DOE. NMED Exhibit 1, August 14, 1998.

31. DOE is not obligated to enter into an agreement to reimburse WID. Id. The fact that WID and DOE have an agreement that DOE will compensate WID for the cost of compliance in no way exempts WID from the regulation’s requirements of providing financial assurance. Id. Given the substantial problems that states have had in obtaining funding from DOE for closure costs at existing federal facilities, NMED has little confidence that DOE will adequately fund clean-up obligations for proper closure of WIPP. Id.

32. Under the Anti-Deficiency Act, 31 USC § 1341, DOE has argued that insufficient funding is an absolute defense to clean-up obligations under state environmental laws. TR, S. Zappe, Pg. 2407-11.
33. The DOE has raised the defense of inadequate funding to comply with clean-up obligations at the Los Alamos National Laboratories and Hanford facility. Id. at 2408-11.

34. Applicants presented no written or oral testimony disputing NMED’s interpretation that the regulations impose financial assurance requirements upon a private operator such as WID.

35. Applicants presented no written or oral testimony disputing NMED’s policy basis for imposing financial assurance requirements upon a private operator such as WID.

36. NMED supported the permit condition of financial assurance with oral testimony and provides support of this condition in its supporting brief. TR Vol. XIII. Pg. 2392-2508, NMED’s Brief in Support (Financial Assurance).

37. NMED’s determination to impose financial assurance requirements is supported by public comment. (SRIC/CCNS)Comment S-DD.1, (NMAG)Comment N.1-6, (Bonneau) TR, Pg. 1687, and (seven individuals during oral non-technical portions of the hearing) NT.20.
B. CONCLUSIONS OF LAW

1. Based on findings of fact 1 and 2, NMED's determination to impose financial assurance requirements upon WID is lawful and complies with 20 NMAC 4.1.500 (incorporating 40 CFR § 264 Subpart H).

2. Based on findings of fact 3 through 9, Applicants have complied with 20 NMAC 4.1.900 (incorporating 40 CFR § 270.14(b)(15)(16)and(17) by submitting cost estimates for financial assurance.

3. Pursuant to 20 NMAC 4.1.500 (incorporating 40 CFR § 264.143 & .147), NMED is not required to approve Applicants' proposed mechanisms for financial assurance as part of these proceedings.

4. NMED's imposition of financial assurances was public noticed as required pursuant to 20 NMAC 4.1.D.

5. Based on findings of fact 11 through 33, NMED believes the mechanisms for financial assurance that Applicants submitted are inadequate and may be void as a matter of state law. See, NMED’s Brief in Support (Financial Assurance).

6. Based upon findings of fact 14 through 33, NMED’s decision to impose financial
assurance requirements upon a private operator such as WID is based upon the strong policy reasons for requiring financial assurance requirements and not dependent upon the operators history of non-compliance.

7. Based on findings of fact 14 through 33, NMED's imposition of financial assurance requirements upon a private operator such as WID is based upon substantial evidence.

8. Based on findings of fact 14 through 33, NMED's imposition of financial assurance upon a private operator such as WID is based upon a reasonable interpretation of 20 NMAC 4.1.500 (incorporating 40 CFR § 264 Subpart H).

9. Based on findings of fact 14 through 33, NMED's imposition of financial assurance upon a private operator such as WID is reasonable and in accordance with law.

10. Based on findings 34 through 37, NMED has met its burden of imposing financial assurance upon a private operator such as WID as provided under 20 NMAC 901.6 and 20 NMAC 1.4.400.A.
A. **MODULE II**

7. **TENTATIVELY IDENTIFIED COMPOUNDS**

A. **FINDINGS OF FACT**

1. NMED imposed a permit condition in the proposed Waste Analysis Plan (WAP) regarding tentatively identified compounds (TICs). RP, No. 5, NMED's Exhibit A (Tentatively Identified Compounds) pg. 1; AR, No. 981134 (Revised Draft Permit, Attachment B, pp. B-10 to B-11 and Attachment B3, pp. B3-5 to B3-6).

2. A TIC is a compound identified through Volatile Organic Compound (VOC) or Semi-Volatile Compound (SVOC) analytical processes, such as Gas Chromatography/Mass Spectrometry (GC/MS), that is not included in the target list of compounds for the specific analytical method. RP, NMED's Exhibit A (Tentatively Identified Compounds) pg. 1.

3. The target analyte list consists of expected hazardous constituents from the hazardous waste codes provided in the WIPP RCRA Part A Permit Application and are also compounds found in the calibration standards used to calibrate VOC/SVOC analytical instruments. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 1.
4. Under the revised Draft Permit, a TIC is any compound not on the list of hazardous waste codes or target analytes provided in the WIPP Part A Permit Application. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 1.

5. The target analyte list for each method subject to TIC evaluation is identified in Permit Attachment B3, Tables B3-2, B3-4 and B3-6. RP, No. 5, AR No. 981134; RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 1.

6. The WIPP Part B Permit Application, Chapter C, §C-4a, p. C-27, lines 12-18, states:

   In accordance with EPA convention, identification of compounds detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes must be reported. These compounds are reported as tentatively identified compounds in the waste data package and must be added to the target analyte list if detected in 25 percent of all samples from a given waste stream and if they appear in the 20 NMAC 4.1, Subpart II, 264, Appendix IX list as implemented in the QAPP [Quality Assurance Program Plan].

   RP No. 5; AR No. X.

7. The TIC requirement proposed in the WIPP Part B Permit Application was deficient because it was inconsistent with EPA SW-846 TIC reporting criteria, posed a risk that significant TICs would not be reported or added to target analyte lists, failed to require reporting for significant TICs not included in the Appendix IX list and failed to provide a mechanism for ensuring that TICs found in twenty-five percent of a waste stream would be added to the target analyte lists. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 6.
8. NMED’s TIC condition in the revised Draft Permit was developed in response to inadequacies in the WIPP Part B Permit Application. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 6.

9. In response to deficiencies in the WIPP RCRA Part B Permit Application and public comment received on the Draft Permit, NMED proposed a permit condition regarding TICs in the revised Draft Permit. The revised Draft Permit, Permit Attachment B, §B-3a(1), pp. B-10 to B-11 states the following requirement regarding Tentatively Identified Compounds:

In accordance with EPA convention, identification of hazardous constituents detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported. These compounds are reported as tentatively identified compounds (TICs) in the analytical batch data report and shall be added to the target analyte list if detected in a given waste stream, if they appear in the 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII, and are detected in 25% of the samples from a given waste stream.

RP No. 5, AR No. 981134.

10. In response to deficiencies in the WIPP RCRA Part B Permit Application and public comment received on the Draft Permit, NMED proposed an additional permit condition regarding TICs in the revised Draft Permit. The revised Draft Permit, Attachment B3, §B3-1, pp. B3-5 to B3-6 states the following requirement regarding Tentatively Identified Compounds:

In accordance with SW-846 convention, identification of compounds detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported. Headspace gas, volatile analysis (TCLP/Totals), and
semi-volatile (TCLP/Totals) shall be subject to tentatively identified compound (TIC) reporting. These TICs are identified in accordance with the following SW-846 criteria:

- Relative intensities of major ions in the reference spectrum (ions greater than 10% of the most abundant ion) must be present in the sample spectrum.

- The relative intensities of the major ions must agree within ±20 percent.

- Molecular ions present in the reference spectrum must be present in the sample spectrum.

- Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination or presence of coeluting compounds.

- Ions present in the reference spectrum but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting peaks.

TICs that meet the SW-846 identification criteria, are detected in 25 percent of all samples from a given waste stream, and that appear in the 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII list, will be compared to acceptable knowledge data to determine if the TIC is a listed waste in the waste stream. TICs may be excluded from the target analyte list for a waste stream if the TIC is a constituent in an F-listed waste whose presence is attributable to waste packaging materials or radiolytic degradation from acceptable knowledge documentation. If a listed waste constituent TIC cannot be attributed to waste packaging materials, radiolysis, or other origins, the constituent will be added to the target analyte list and new hazardous waste codes will be assigned, if appropriate. TICs subject to inclusion on the target analyte list that are toxicity characteristic parameters shall be added to the target analyte list regardless of origin because the hazardous waste designation for these codes is not based on source. However, for toxicity characteristic and non-toxic F003 constituents, the site may take concentration into account when assessing whether to add a hazardous waste code. If a target analyte list for a waste stream is expanded due to the presence of TICs, all samples collected from that waste stream will be analyzed for constituents on the expanded list.

RP No. 5, AR No. 981134.
11. 20 NMAC 4.1.200 (incorporating 40 CFR §261.20(b)) requires the identification of all applicable hazardous waste codes for toxicity characteristic hazardous waste.¹

12. 20 NMAC 4.1.200 (incorporating 40 CFR §261.30(c)) requires the identification of all applicable hazardous waste codes for listed hazardous waste.²

13. Before the owner or operator of a facility stores and disposes hazardous waste, the owner or operator must obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum, the analysis must contain all the information which must be known to store or dispose the waste in accordance with 40 CFR Part 264. 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)).

14. The owner or operator must develop and follow a written waste analysis plan which describes the waste analysis procedures. At a minimum, the plan must specify, inter alia:
   a. The parameters for which each hazardous waste will be analyzed;
   b. The test methods which will be used to test for these parameters; and
   c. The sampling method which will be used to obtain a representative sample of the waste to be analyzed.

¹ Toxicity characteristic wastes are constituents that exceed the maximum concentration specified in 20 NMAC 4.1.200 (incorporating CFR §261.24) when tested pursuant to Method 1311, Toxicity Characteristic Leaching Procedure. Other characteristic wastes, i.e., hazardous wastes which are ignitable, reactive or corrosive waste, are prohibited under the Treatment, Storage and Disposal Facility Waste Acceptance Criteria specified in the Revised Draft Permit, Module II, Condition II.C.3.

² Listed wastes are all wastes attributable to non-specific processes identified in 20 NMAC 4.1.200 (incorporating CFR §261.31) or wastes attributable to specific processes identified in 20 NMAC 4.1.20 (incorporating 40 CFR §261.32).
20 NMAC 4.1.500 (incorporating 40 CFR §264.13(b)(1), (2) & (3)).

15. Each hazardous waste act permit shall include permit conditions necessary to achieve compliance with the hazardous waste act and regulations. 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(1)).

16. Each hazardous waste act permit for a facility that stores or disposes hazardous waste shall contain terms and conditions necessary to protect human health and the environment. 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(2)).

17. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, detection and monitoring requirements. 20 NMAC 4.1.500 (incorporating 40 CFR §264.601).

18. With respect to miscellaneous units, protection of human health and the environment includes, but is not limited to, prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the air. 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(c)).
19. The Subpart X (miscellaneous unit) environmental performance standards require the Permittees to conduct monitoring, testing, and analysis to protect human health and the environment. 20 NMAC 4.1.500 (incorporating 40 CFR §264.602).

20. The revised Draft Permit prohibits the management, storage or disposal at WIPP of any TRU mixed waste and corresponding hazardous waste codes not listed in the Permittees’ Part A permit application and in Permit Module II, Table II.C.4. RP, No. 5, AR No. 981134 (Revised Draft Permit, Permit Module II, Permit Condition II.C.4).

21. The revised Draft Permit prohibits the management, storage or disposal at WIPP of any waste which is not accompanied with a Waste Stream Profile Form. RP, No. 5, AR No. 981134 (Revised Draft Permit, Permit Module II, Permit Condition II.C.3.k).

22. The revised Draft Permit requires the Waste Stream Profile Form to include the EPA hazardous waste codes applicable to that waste stream. RP, No. 5, AR No. 981134 (Revised Draft Permit, Permit Attachment B, §B-1d, p. B-8).

23. TICs are indicators that a hazardous waste is present which was not identified in the Permittees’ list of hazardous waste codes for a specific waste stream. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 3.
24. The Permittees will meet the waste analysis plan requirements through the use of acceptable knowledge and confirmatory sampling and analysis, including sampling and analysis of headspace gas, homogenous solids and soils gravels from waste containers. RP, NMED's Exhibit A (Tentatively Identified Compounds) pg. 3.

25. TIC analysis ensures the Permittees properly characterize waste because TICs detected during headspace gas analysis, and homogenous or soil/gravel sampling could indicate the presence of waste not previously identified through acceptable knowledge. RP, NMED's Exhibit A (Tentatively Identified Compounds) pp. 3-4.

26. In the absence of the permit condition regarding TICs proposed by NMED for the proposed final HWA Permit, the Permittees could manage, store or dispose at WIPP improperly characterized waste, including waste for which the applicable waste codes are not identified. RP, NMED's Exhibit A (Tentatively Identified Compounds) pp. 3-4.

27. The revised Draft Permit, Module IV, requires the Permittees to monitor VOC emissions in the underground hazardous waste disposal units. RP, No. 5, AR No. 981134 (Revised Draft Permit, Module IV, Condition IV.F.2).
28. The VOC limits in Module IV are based on available information regarding the hazardous waste codes authorized for disposal at WIPP. RP, NMED's Exhibit A (Tentatively Identified Compounds) pg. 4.

29. TIC analysis provides analytical data necessary to monitor and prevent releases to the air by identifying headspace gas components, volatile organic compounds and semi-volatile organic compounds that could be emitted at WIPP during disposal operations in the hazardous waste disposal unit. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 4.

30. The Applicants submitted the following comments regarding TICs:
   a. TICs should be reported only if they satisfy the minimum identification requirements specified in the SW-846 Methods and, consistent with the Comprehensive Environmental Response, Cleanup and Liability Act Contractor Laboratory Program (CERCLA CLP) criteria, to a maximum of twenty (20) GC/MS semi-volatile compounds, ten (10) volatile GC/MS compounds, and five (5) Fourier Transform Infrared Spectroscopy compounds (applicable to headspace gas VOC analyses only).
   b. The permit should not require the addition of a TIC to the target analyte list for a method if the TIC were detected in the original and confirmatory samples.
c. A TIC should only be added if found in more than twenty five (25) percent of the samples.

d. TICs should not be added to the target analyte list if found on the Appendix VIII list provided in 20 NMAC 4.1.200 (incorporating 40 CFR §261).

RP, Nos. 15 & 36 (Comment #188 (resubmitting Comment # 27), pp. 106-108); NMED’s Exhibit A (Tentatively Identified Compounds) pp. 6-7. See, Exhibit 1, NMED’s Response to Written Comments on the November 13, 1998 revised Draft Permit.

31. The Idaho National Engineering and Environmental Laboratory submitted comments on the proposed TIC permit condition which are summarized in NMED’s Response to Comments to the revised Draft Permit as follows:

a. Delete page B-10, Section B-3a(1), lines 33-39, and replace with the following: In accordance with EPA conventions, identification of hazardous constituents detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported as tentatively identified compounds (TICs) as described in Section B3-1.

b. Delete pages B-13 and B-14, Section B-3d, lines 38-40 and replace with the following: In the process of performing organic headspace and solid sample analyses, nontarget compounds may be identified. These compounds will be reported as TICs as described in Section B3-1.
c. Page B3-5, Section B3-1, insert the following text after the first sentence in section titled "Identification of Tentatively Identified Compounds": "For samples containing TICs with total ion current peaks greater than 10 percent of the nearest (RT) internal standard, appropriate search routines of the latest NIST or equivalent mass spectral library must be performed on the 20 greatest in area count. For samples analyzed using external standard quantitation, mass spectral library searches must be performed on up to 20 TICs (those with the greatest area counts) which have total ion current peaks greater than 10 percent of the largest target analyte identified, or ten times the standard deviation of the background. For samples analyzed using FTIRS, a library search must be performed to determine the five most likely compounds contributing to the detected interference."

d. Delete text on page B3-6, Section B3-1, lines 1-16 and replace with the following:
"TICs shall be added to the target analyte list if included in 20 NMAC 4.1.200 (incorporating 40 CFR Part 264, Appendix IX), and are detected in 25% of the samples from a given waste stream or waste stream lot. Once added to the target analyte list, the constituents will be evaluated and acceptable knowledge confirmed in accordance with the requirements specified in Section B4-3d. If the UCL90 of the mean concentration of the constituent is greater than the PRQL, the Permittees will require the generator/storage sites to reevaluate acceptable knowledge information to identify potential source(s) of the constituent (e.g., RCRA-regulated listed waste, packaging materials, or radiolytic degradation). If
the source cannot be identified, new hazardous waste codes will be assigned, if appropriate."

RP No. 28 (Comment #10 to the revised Draft Permit by the Idaho National Engineering and Environment Laboratory) pp. 7-10. See, Exhibit 1 NMED’s Response to Written Comments on the November 13, 1998 revised Draft Permit (Comment W.1-10).

32. The Los Alamos National Laboratory provided a comment to NMED’s proposed TIC condition which requested the insertion of “if they” to the text of Permit Attachment B, §B-3a(1), pp. B-10, line 39. RP No. 27, pg. 3. See, NMED’s Response to Written Comments on the November 13, 1998 revised Draft Permit (Comment X.1-29).

33. In response to public comments, NMED modified the TIC permit condition by defining the TIC identification criteria by reference to the SW-846 Methods, adding the twenty (25) percent listing criterion, and indicating that TICs must appear on the Appendix VIII list. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.

34. In response to Comment X.1-29 from the Los Alamos National Laboratory, NMED proposes to amend the language of Permit Attachment B, §B-3a(1), pp. B-10 to B-11 for the proposed final HWA permit. Proposed amendments are indicated in redline/strikeout as follows:

Every TRU mixed waste container will be sampled and analyzed to determine the concentrations of VOCs (presented in Table B-3) in headspace gases. Sampling protocols, equipment, and QA/QC methods for headspace-gas sampling are provided in Permit Attachment B1. In accordance with EPA convention,
identification of hazardous constituents detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported. These compounds are reported as tentatively identified compounds (TICs) in the analytical batch data report and shall be added to the target analyte list if detected in a given waste stream, if they appear in the 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII, and if they are detected in 25% of the samples from a given waste stream. The headspace gas analysis method Quality Assurance Objectives (QAOs) are specified in Permit Attachment B3.

RP No. 27. See NMED’s proposed final HWA permit and Exhibit 1 NMED’s Response to Written Public Comments on the November 13, 1998 Revised Draft Permit, Module II.

35. In response to Comment W.1-10 from the Idaho National Engineering and Environmental Laboratory, NMED proposes to amend the language of Attachment B3 for the proposed final HWA permit. Proposed amendments are indicated in redline/strikeout as follows:

In accordance with SW-846 convention, identification of compounds detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported. Headspace gas, volatile analysis (TCLP/Totals), and semi-volatile (TCLP/Totals) shall be subject to tentatively identified compound (TIC) reporting. These TICs of GC/MS Methods are identified in accordance with the following SW-846 criteria:

- Relative intensities of major ions in the reference spectrum (ions greater than 10% of the most abundant ion) must be present in the sample spectrum.

- The relative intensities of the major ions must agree within ± 20 percent.

- Molecular ions present in the reference spectrum must be present in the sample spectrum.

- Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination or presence of coeluting compounds.

- Ions present in the reference spectrum but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting peaks.
TICs for headspace gas analyses that are performed through FTIR analyses shall be identified in accordance with the specifications of SW-846 Method 8410.

TICs that meet the SW-846 identification criteria, are detected in 25 percent of all samples from a given waste stream, and that appear in the 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII list, will be compared to acceptable knowledge data to determine if the TIC is a listed waste in the waste stream. TICs identified through headspace gas analyses that meet the Appendix VIII list criteria and the 25 percent identification criteria for a waste stream will be added to the headspace gas waste stream target list regardless of the hazardous waste listing associated with the waste stream. TICs reported from the Total's VOC or SVOC analyses may be excluded from the target analyte list for a waste stream if the TIC is a constituent in an F-listed waste whose presence is attributable to waste packaging materials or radiolytic degradation from acceptable knowledge documentation. If a listed waste constituent TIC cannot be attributed to waste packaging materials, radiolysis, or other origins, the constituent will be added to the target analyte list and new hazardous waste codes will be assigned, if appropriate. TICs subject to inclusion on the target analyte list that are toxicity characteristic parameters shall be added to the target analyte list regardless of origin because the hazardous waste designation for these codes is not based on source. However, for toxicity characteristic and non-toxic F003 constituents, the site may take concentration into account when assessing whether to add a hazardous waste code. If a target analyte list for a waste stream is expanded due to the presence of TICs, all samples collected from that waste stream will be analyzed for constituents on the expanded list.

RP, No. 28. See NMED's Exhibit 3 the proposed final HWA permit and Exhibit 1 NMED's Response to Written Public Comments on the November 13, 1998 revised Draft Permit, Module II.

36. The twenty five (25) percent listing criteria is proposed for the final HWA Permit because the regulations do not specify when TICs must be added to the target analyte lists, and because the twenty five (25) percent listing criteria is easy to implement from a programmatic standpoint. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.
37. The provision for Fourier Transform Infrared Spectroscopy (FTIR) analyses is proposed for the final HWA Permit because the methodology for Gas Chromatography/Mass Spectrometry does not apply to FTIR. The applicable method for FTIR is SW-846 Method 8410. See NMED’s proposed Final Permit and Exhibit 1 NMED’s Response to Written Public Comments on the November 13, 1998 revised Draft Permit, Module II (Comment W.1-10).

38. The CERCLA CLP Statement of Work (EPA, OLMO 3.2 revision) limits are inappropriate for use in identifying TICs under the Hazardous Waste Act because the CLP statement of work arbitrarily limits the number of compounds identified to ten (10) volatile organic compounds and twenty (20) semi-volatile organic compounds of greatest concentration which are not system monitoring compounds and are not listed on the Target Compound List. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.

39. Comments regarding the use of CLP criteria were not incorporated into the proposed final HWA Permit because the arbitrary nature of the CLP limitations might exclude significant TICs from target analyte lists. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.
40. Comments regarding the use of CLP criteria were not incorporated into the proposed final HWA Permit because the CLP criteria were prepared for a completely different regulatory scheme -- CERCLA, not the Hazardous Waste Act. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.

41. SW-846 Methods are the only chemical analysis test methods specified for use under RCRA. 20 NMAC 4.1.200 (incorporating CFR § 261 Appendix III). RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.

42. Comments regarding the use of the Appendix IX list specified in 20 NMAC 4.1.500 (incorporating CFR § 264) were not incorporated into the proposed final HWA Permit because the Appendix IX list is applicable to ground water monitoring and is therefore not applicable to TIC identification, and because the Appendix IX list is a sublist of Appendix VIII and does not include all possible constituents. RP, NMED’s Exhibit A (Tentatively Identified Compounds) pg. 7.
B. CONCLUSIONS OF LAW

1. Based on Findings of Fact 1-29, the TIC permit condition proposed by NMED for the final HWA Permit is a condition necessary to provide testing and analytical data necessary to protect human health and the environment by identifying and characterizing, as required by 20 NMAC 4.1.500 & 900 (incorporating 40 CFR §§264.601, 264.601(c), 264.602, 270.32(b)(2)), hazardous waste, such as headspace gas components, volatile organic compounds and semi-volatile organic compounds, that could be emitted to the air during management, storage or disposal of waste at WIPP. 20 NMAC 4.1.901.A.8 and NMSA 1978 §74-4-4.2(c) (Repl. Pamp. 1993).

2. Based on Findings of Fact 6-12 and 15-29, the TIC process proposed in the WIPP RCRA Part B Permit Application was deficient because it failed to ensure that all applicable waste codes would be applied to a hazardous waste, as required by 20 NMAC 4.1.200 (incorporating 40 CFR §§261.20(b) and 261.30(c)).

3. Based on Findings of Fact 6-10 and 13-29, the TIC process proposed in the WIPP RCRA Part B Permit Application was deficient because it might allow the Permittees to manage, store or dispose at WIPP improperly characterized hazardous waste, as prohibited by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)).
4. Based on Findings of Fact 6-10 and 15-29, the TIC process proposed in the WIPP RCRA Part B Permit Application was deficient because it did not provide data necessary to monitor and prevent releases to the air, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(c)).

5. Based on Findings of Fact 6-29, 34 and 35, NMED's proposed final HWA Permit condition regarding Tentatively Identified Compounds is reasonable, supported by substantial evidence and in accordance with law, necessary to ensure the Permittees do not dispose hazardous waste without identifying all applicable hazardous waste codes, as required by 20 NMAC 4.1.200 (incorporating 40 CFR §§261.20(b) & 261.30(c)).

6. Based on Findings of Fact 6-10, 13-29, 34 and 35, NMED's proposed final HWA Permit condition regarding Tentatively Identified Compounds is reasonable, supported by substantial evidence and in accordance with law, necessary to ensure the Permittees obtain a detailed chemical analysis of the waste, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)).

7. Based on Findings of Fact 6-10, 13-29, 34 and 35, NMED's proposed final HWA Permit condition regarding Tentatively Identified Compounds is reasonable, supported by substantial evidence and in accordance with law, necessary to ensure the Permittees develop and follow a written waste analysis plan which describes the waste analysis
procedures, including the parameters for which each hazardous waste will be analyzed; the test methods which will be used to test for these parameters; and the sampling method which will be used to obtain a representative sample of the waste to be analyzed, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(b)(1), (2) & (3)).

8. Based on Findings of Fact 6-29, 34 and 35, NMED’s proposed final HWA Permit condition regarding Tentatively Identified Compounds is reasonable, supported by substantial evidence and in accordance with law, necessary to achieve compliance with the hazardous waste act and regulations specified at 20 NMAC 4.1.200 & 500 (incorporating 40 CFR §§261.20(b), 261.30(c), 264.13(a)(1), (b)(1), (2) & (3), 264.601, 264.601(c) & 264.602), as required by 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(1)).

9. Based on Findings of Fact 8-10, 34, 35 and 38-41, NMED’s proposed final HWA Permit condition regarding Tentatively Identified Compounds is consistent with applicable Environmental Protection Agency guidance.

10. Based on Findings of Fact 30-42 and Exhibit 1 (attached), NMED has duly considered all public comments received during the public comment, has specified which provisions of the Draft Permit have been changed and has provided reasons for these changes in accordance with 20 NMAC §§4.1.901A.7 and 901.A.9.
11. Based on Findings of Fact 11-42 and Exhibit 1 (attached), no Party of Commentor has met their burden in challenging NMED's proposed Final Permit condition regarding Tentatively Identified Compounds by presenting substantial evidence that this condition is unreasonable or inconsistent with the Hazardous Waste Act. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
B. MODULE IV

1. PROHIBITION OF TRU NON-MIXED WASTE

A. FINDINGS OF FACT

1. NMED is required to draft permits based upon all information provided to it by the Applicants in the permit application. TR, S.Zappe at pp. 2372-2383 and 20 NMAC 4.1.901.A.1 and .2.

2. The Secretary's approval of a final permit is based upon a complete application and all information provided to the agency in the permit application. 20 NMAC 4.1.900 (incorporating 40 CFR § 270.10(c)).

3. An applicant for a HWA permit is required to submit an application that contains a waste analysis plan required under 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(b)) and all information known to treat, store or dispose of wastes properly in accordance with 40 CFR §264.13(a). 20 NMAC 4.1.900 (incorporating 40 CFR §270.14(b)(2) and (3)).

4. NMED regulations provide that "[a]ll information contained in a permit application is required to be certified as true, accurate and complete" under 20 NMAC 4.1.900 (incorporating 40 CFR § 270.11(d)).
5. NMED regulations provide that "[e]ach permit issued under 40 CFR Part 264 shall contain all terms and conditions as the [State] determines necessary to protect human health and the environment." 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)). RP, NMED's Exhibit A (Non-Mixed Waste) at pg.7.

6. 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601) provides that "[p]ermits for miscellaneous units contain such terms and provisions as necessary to protect human health and the environment, including but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of waste or hazardous constituents from the unit."

7. In the permit application, WIPP is defined as a geologic repository mined within a bedded salt formation. RP, No. 5, Permit Application, Chapter D, pg. D-16, line 3 (AR No. X).

8. The permit application states that the WIPP repository or the hazardous waste disposal units qualified for permitting as a "miscellaneous unit" under the HWA and RCRA. RP, NMED's Exhibit A (Non-Mixed Waste), Attachment 3; TR, S.Zappe, at pg. 2447 and TR, Bob Kehrman at pg. 216.

9. Under the permit application, TRU mixed waste will be disposed in discrete "underground hazardous waste management units" which are defined as eight panels,
each of which consists of seven rooms and two access drifts mined in a salt bed. Each panel, including panel one, is a proposed HWA regulated unit under the permit application. RP, No. 5, Permit Application, Chapter B, pg. B-9 (AR No. X) and RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 2 and Attachment 3.

10. Transuranic (TRU) waste is defined as waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, with certain exceptions. WIPP Land Withdrawal Act, Public Law No. 102-579, 106 stat.4777, as amended.

11. Transuranic mixed waste is TRU waste which “contains both hazardous waste and source special nuclear or by product material subject to the Atomic Energy Act of 1954.” 42 USC § 6903 (41).

12. The permit application contains a waste characterization plan that clearly indicates that Applicants would manage and characterize all TRU waste as if it were “mixed waste.” TR, S. Zappe at pp. 2446 - 2447; RP, NMED’s Exhibit A (Non-Mixed Waste) at pp.1 -2 (“applicants repeatedly stated their commitment to characterize ‘all TRU waste’ destined for disposal at WIPP ‘as though it were mixed’.”). The permit application states that “all TRU waste is managed as if it is mixed waste.” RP, No. 5, Permit Application, Chapter A, page a-5, line 20 (AR No. X).

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1 In the HWA permit, a panel is an underground hazardous waste disposal unit (HWDU). See Module IV.A.
13. The permit application states that the WIPP facility requires TRU waste characterization programs to adhere to the requirements of the WAP and that “all characterization activities discussed in (this chapter) will be carried out at generator sites in accordance with this WAP (waste analysis plan).” RP, No. 5, Permit Application, Chapter C (C-2, line 17), (AR No. X) (emphasis added). Other specific citations to the applications reflecting this intent are referred to in NMED’s written testimony and are incorporated herein. RP, NMED’s Exhibit A (Non-Mixed Waste) Attachment 2 (containing non-exhaustive list of specific citations to permit application, QAPP and WIPP-WAC).

14. The permit application states that “once the WIPP facility has obtained a hazardous waste permit, the facility will be used for the permanent disposal of TRU waste, including TRU mixed waste containing hazardous constituents regulated under the [hazardous waste act].” RP, No. 5 Permit Application, Chapter B, page B-2, lines 24 -26 (AR No.X) and NMED’s Exhibit A (Non-Mixed Waste) (Table 1, Attachment 2, containing a non-exhaustive list of specific citations).

15. The Applicants’ statements in the permit application is consistent with DOE correspondence in the administrative record which state that “DOE had no plans or intentions to dispose any waste (neither hazardous, radioactive nor mixed) in the

16. The permit application and waste analysis plan submitted by Applicants to NMED for review did not propose to segregate TRU waste based upon its characterization as “non-mixed” or “mixed” waste in any proposed HWA-regulated unit or units that are not part of the permit application; the application did not propose that non-mixed wastes would be disposed of in proposed HWA-regulated units prior to permit issuance. TR, S. Zappe, pp. 2448 - 2449.

17. NMED approved the Applicants’ permit application and waste analysis plan in the Draft permit and revised Draft Permit based upon the Applicants’ commitment to manage and characterize all TRU waste as “mixed waste” in the WIPP “underground hazardous waste management units.” RP, NMED’s Exhibit A (Non-Mixed Waste), page 3. This commitment was a “critical commitment that was key to all of the assumptions used by NMED in developing a draft permit.” TR, S.Zappe at pg. 2455.

18. After issuance of the May 15, 1998 Draft Permit and during the public comment period, the Applicants informed NMED that it determined to manage and dispose TRU “non-mixed” waste from the Los Alamos National Laboratory (LANL) (TA-55-43) and had not determined whether to dispose of waste from other generator sites prior to receipt of a RCRA Part B Disposal Phase permit. RP, NMED’s Exhibit A
(Non-Mixed Waste) (Attachment 4) (Letter dated May 18, 1998 from DOE Deputy Counsel to NMED Secretary) and TR, S. Zappe at pp. 2451 and 2453.

19. During the public comment on the May 15, 1998 Draft Permit, several commentors raised concerns regarding the Applicants' determination to dispose of "non-mixed" TRU waste from Los Alamos or other generator sites at WIPP prior to permit issuance. See Exhibit 1 (NMED's Response to Comments - August 13, 1998).

20. During the public comment on the May 15, 1998 Draft Permit, the Applicants asserted that NMED had no authority to regulate TRU non-mixed waste. Applicants' Comment Nos. 2, 15, 42, 43 and 50 (filed August 14, 1998). AR No. 980827.

21. Based upon public comment, NMED determined to impose Permit Condition IV.B.2.b to prohibit the disposal of TRU non-mixed waste in any unit unless such waste is characterized in a manner identical to the requirements of the WAP. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 1 and TR, S. Zappe at pp. 2453-54.

22. NMED imposed Permit Condition IV.B.2.b. to ensure compliance with the HWA and RCRA and that only permitted wastes are disposed of in HWA-regulated units. RP, NMED's Exhibit A (Non-Mixed Waste) at pp. 4-5. The disposal of waste that has not been characterized in accordance with the waste analysis plan in the HWA permit poses a direct threat to human health and the environment. Id. Waste characterization
is considered the linchpin and the most critical element of the HWA and RCRA. TR, S. Zappe at pp. 2426 - 28. Waste characterization is critical to identify whether the TRU waste contains prohibited items, whether it poses a threat to human health and the environment, worker safety and to identify the appropriate measures to store or dispose of that waste. Id. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 4.

23. NMED has authority to set permit conditions that prevent the release of volatile organic compounds (VOCs) that may have adverse effects upon human health and the environment due to the migration of constituents in the air. 20 NMAC 4.1.500 (incorporating 40 CFR §§264.600 -.601). Id. at pg 5. See also RP, NMED's Exhibit A (VOC Concentration Limits) pp. 1 - 14.

24. The release of VOCs from TRU mixed and non-mixed waste containers would constitute a "release" of "hazardous constituents" into the air. Id. and Permit Module VII.A. (Definitions).

25. NMED imposed Permit Condition IV.B.2.b to ensure that the environmental performance standards for miscellaneous units will be met under 20 NMAC 4.1.500 (incorporating 40 CFR Part 264) by requiring the characterization of all TRU waste containers - mixed and non-mixed waste - to quantify VOCs in the headspace gas to ensure that the release of VOCs from a HWDU room do not threaten or adversely
effect human health and the environment. RP, NMED's Exhibit A (Non-Mixed Waste) at pp. 4-5 and TR, S.Zappe at pp. 2429, 2431.

26. Permit Condition IV.B.2.b is supported by the permit application which provides that VOCs may be generated that threaten and adversely affect human health and the environment from TRU non-mixed and mixed waste containers. RP, NMED's Exhibit A (Non-Mixed Waste) at pp. 4-5 and (VOC Concentration Limits) at pp. 6 - 14; TR, S.Zappe at pp. 2430 - 2431; and C. Walker at pp. 2705 - 2706.

27. The permit application states that six (6) of the thirteen (13) VOCs expected to be present in TRU waste would contain carcinogenic compounds which are harmful to human health and the environment; the application does not distinguish between mixed and TRU non-mixed waste containers. TR, S. Zappe at pp. 2429-30. See also RP, NMED's Exhibit A (VOC Concentration Limits) at pp. 6 - 14.

28. The permit application did not indicate or provide any information that TRU non-mixed waste would not contain VOCs that are carcinogenic or harmful to human health and the environment. Id at pp. 2430-31.

29. Permit Condition IV.B.2.b is supported by NMED's and Applicants' own analyses that demonstrates that the average concentration of VOCs in headspace gas of TRU waste containers (mixed and non-mixed) in a HWDU room must be limited to protect
human health and the environment. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 4.

30. DOE documentation supports the conclusion that numerous VOCs at WIPP are RCRA-listed compounds. DOE documentation acknowledged that the radiolysis of plastics in non-mixed waste will generate VOCs. TR, C.Walker at pg 2704 and RP, NMED’s Exhibit A (Non-Mixed Waste) at pp. 4 - 5.

31. DOE presented no written or oral comment disputing that VOCs may be present in the headspace gas of TRU non-mixed waste containers. See DOE Written Comment and Transcript.

32. At the public hearing, several parties raised concerns that VOCs were present in the headspace gas of waste disposed of at WIPP from generator sites, including Los Alamos National Laboratory (TA-55-43). TR, SRIC/CCNS Witnesses, B. Franke at pp. 1917; J. Hirschorn at pp. 1776-1801; CARD witness, D. Reade at pg. 1985; J. Channel at pg. 950-954; and B. Bonneau at pg. 1690.

33. NMED would not have enough information to ensure that the requirements of the HWA or RCRA were met without information regarding VOCs in both mixed and non-mixed waste containers. TR, S. Zappe at pg. 2431. If TRU non-mixed waste is not characterized and data reported for the presence of VOCs in the headspace gas of
non-mixed waste, NMED would be unsure what the contribution would be between the two. Id.

34. VOC emissions from TRU non-mixed waste containers at WIPP would be unregulated. USEPA regulations at 40 CFR Part 190 or Part 194 do not require monitoring of VOC emissions. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 5. TR, S. Zappe at pp. 2432–33.

35. USEPA regulations at 40 CFR Part 191 and Part 194 are disposal regulations and criteria that apply to the "time period beginning at disposal and ending 10,000 years after disposal." See 40 CFR §194.2 (defining the "regulatory time frame") RP, No. 14, Supplemental Fact Sheet pp. 1-2. The term "disposal" is defined as "the permanent isolation of spent nuclear fuel or radioactive waste from accessible environment with no intent of recovery... For example, disposal of waste in a geologic repository occurs when all the shafts to the repository are backfilled and sealed." 40 CFR § 191.02.m. RP, No. 14, Supplemental Fact Sheet pp. 1-2.

36. EPA's regulatory requirements during the operational phase of the WIPP facility are set forth under 40 CFR 191, Subpart A. RP, No. 14 Supplemental Fact Sheet pp. 1-2. Subpart A limits radiation doses to members of the public from the management and storage of TRU waste at WIPP. Subpart A does not contain any other specific requirements and is not duplicative of the HWA or RCRA. Id.
37. USEPA does not impose any regulatory requirements for waste characterization under 40 CFR Part 194 that are duplicative of RCRA; EPA does not evaluate headspace gas sampling, solid sampling, visual examinations or radiography with respect to identification of RCRA items. EPA does not evaluate acceptable knowledge with respect to hazardous waste characterization. TR, C. Walker at pg. 2709.

38. NMED interprets USEPA regulations at 40 CFR Part 191 and 194 to not impose any regulatory requirements duplicative of the HWA and RCRA which are applicable to hazardous waste or hazardous constituents, including requirements for waste characterization and characterization information for VOC emissions from headspace gas. RP, No. 14, Supplemental Fact Sheet; NMED's Exhibit A (Non-Mixed Waste) pp. 4-5; TR, S. Zappe pp. 2432-33; C. Walker pp. 2706-07.

39. The Applicants presented no written or oral comment that disputes that USEPA does not impose any regulatory requirements duplicative of the HWA or RCRA, including VOC emissions from headspace gas containers of TRU mixed and non-mixed waste containers.

40. NMED imposed Permit Condition IV.B.2.b to ensure that all TRU waste, including non-mixed waste, is characterized in accordance with the waste analysis plan set forth in the HWA permit to ensure that no prohibited wastes as specified under the waste
acceptance criteria (WAC) of Permit Condition II.C.3 are disposed of in regulated units under the HWA. TR, S. Zappe at pp. 2435-2437.

41. Permit Condition II.C.3. provides that the permittees shall not accept TRU mixed wastes for management, storage or disposal at WIPP that fails to meet the waste acceptance criteria under Permit Condition II.C.3.

42. Permit Condition II.C.3. prohibits the following wastes for storage, management or disposal at WIPP:

   a. liquids or liquid wastes;
   b. non-radionuclides pyrophoric materials;
   c. non-mixed hazardous wastes;
   d. wastes that are chemically incompatible;
   e. explosives and compressed gases;
   f. wastes with PCB concentrations that are in excess of a limit;
   g. ignitable, corrosive and reactive wastes;
   h. remote-handled TRU mixed wastes;
   i. waste containers that have not undergone headspace gas sampling;
   j. waste containers that have not undergone radiographic or visual examination;
   k. waste containers that have not been preceded by a Waste Stream Profile Form.

43. Under the WAP in the permit application, and, as approved in the revised Draft Permit, all TRU waste is characterized to ascertain that no prohibited wastes under Permit Condition II.C.3 are disposed of at WIPP. RP, No. 5, Permit Application, Chapter C, pg. C-12 (AR No. X). See also TR, S. Zappe at 2437. If waste has not been characterized in accordance with the final WAP, NMED cannot be sure that the waste did not contain prohibited wastes under Permit Condition II.C.3. Id. at 2437.

44. Permit Condition IV.B.2.b’s characterization requirements for all TRU waste (mixed and non-mixed) in accordance with the final WAP as set forth in the HWA permit is required to ensure that prohibited wastes under Permit Condition II.C.3 are not disposed of at WIPP, S. Zappe at pp. 2436 - 2437. NMED had no other ability to ensure that these prohibited items are not disposed at WIPP. Id.

45. The Applicants presented no written or oral comment challenging or disputing the prohibited wastes under Permit Condition II.C.3, with the exception of remote-handled mixed wastes.

46. The Applicants presented no written or oral comment challenging or disputing the requirement that all TRU waste in the HWA permit must be characterized according to the WAP to ascertain that no prohibited wastes under Permit Condition II.C.3 are disposed of at WIPP under the HWA permit.
47. Permit Condition IV.B.2.b’s requirements for waste characterization was imposed to ensure that TRU waste is characterized according to acceptable knowledge requirements. RP, NMED’s Exhibit A (Non-Mixed Waste) pp. 5-6. If TRU waste is not characterized according to the process set forth in the HWA permit, NMED has no confidence regarding a DOE determination that TRU waste is “non-mixed.” Id. The Applicants may accept waste that is “hazardous” or otherwise prohibited in violation of the permit. Id., TR, S.Zappe at pg. 2433 and C.Walker at pg. 2707.

48. Permit Condition IV.B.2.b’s requirements for waste characterization was imposed to ensure that all TRU waste is characterized according to the radiography requirements of the WAP. RP, NMED’s Exhibit A (Non-Mixed Waste) pg. 6. The applicants committed to performing a 100% radiography or visual examination of all containers (mixed and non-mixed) waste; if not all TRU waste is required to undergo radiography or visual examination then waste may be accepted by Applicants at WIPP which contains prohibited items. Id. and TR, S. Zappe at pp. 2434 and C.Walker at pp. 2707.

49. Permit Condition IV.B.2.b’s requirements for waste characterization was imposed to address solids sampling concerns. The Applicants committed to perform solids sampling and analysis for Summary Waste Categories Groups S3000 and S4000. Applicants committed to characterize all waste in the same manner including the coring of non-mixed TRU waste to confirm characterization based upon acceptable
knowledge. If the Applicants are not required to perform this sampling and analysis as
specified in the HWA permit, NMED has no confidence in the characterizations based
on incomplete sampling. Permit Application, Rev. 6.0, Chapter C, Section C-3, page C-
22, line 14+. (AR No. X) and RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 6.

50. NMED imposed Permit Condition IV.B.2.b. to address data management and quality
assurance. TR, S. Zappe at pg. 2435. Applicants’ commitment in the permit
application to manage information regarding waste characterization does not
distinguish between TRU mixed and non-mixed waste. The data management and
quality assurance requirements are intended to ensure that the Applicants generate and
manage information to demonstrate proper characterization of waste; if applicants are
not required to meet these requirements for “non-mixed” waste then NMED has no
confidence that Applicants will properly evaluate characterization data or properly
characterize waste. TR, S. Zappe at pg. 2433, RP, NMED’s Exhibit A (Non-Mixed
Waste) pg. 6.

51. NMED imposed Permit Condition IV.B.2.b. to ensure the enforceability of several
permit conditions. The basis for NMED’s enforceability issues arise from the
Department’s concern to ensure that no unpermitted or unauthorized wastes are
disposed of at WIPP in regulated units which are not characterized in accordance with
the waste analysis plan in the HWA permit. TR, S. Zappe at pp. 2437, 2441
52. NMED imposed Permit Condition IV.B.2.b. to ensure the enforceability of Permit Condition IV.D.1, which establishes room-based VOC concentration limits which protects WIPP workers and the public from exposure to harmful VOC concentrations. RP, NMED’s Exhibit A (Non-Mixed Waste) pg. 6 and (VOC Concentration Limits) pp. 1 --14. Once waste is disposed of at WIPP, it is not possible for NMED to distinguish between TRU non-mixed and mixed waste containers. TR, S.Zappe at pg. 2441.

53. The Applicants must quantify VOCs in all TRU waste destined for disposal at WIPP - mixed and non-mixed - in order to comply with Permit Condition IV.D.1 VOC concentration limits. RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 5 and (VOC Concentration Limits) pp. 10 – 14.

54. Without information regarding VOC emissions, NMED is unable to ensure the protection of human health and the environment from any releases associated with headspace from non-mixed waste. TR, S.Zappe at pp. 2429, 2431.

55. If NMED does not have information regarding the room-based VOC concentration limits, the Department will not know the headspace gas concentration in a TRU nonmixed waste container. NMED enforcement staff would have no ability to inspect, evaluate or identify whether VOCs are emitted from TRU mixed waste or non-mixed waste containers. Id. at pp. 2437 – 38.
56. NMED imposed Permit Condition IV.B.2.b to ensure enforceability of Permit Condition IV.D.2.b, which requires the WIPP Waste Information System Report (WWIS) to be capable of generating a report identifying the average VOC concentrations on a room and panel basis, based on the actual waste containers disposed and the VOC headspace gas sampling data from those containers. NMED cannot implement this condition without data from properly characterized TRU non-mixed waste. RP, NMED's Exhibit A (Non-Mixed Waste) pg. 7; TR, S. Zappe at pg. 2439.

57. NMED imposed Permit Condition IV.B.2.b to ensure enforceability of Permit Condition IV.F.2, which requires the Applicants to conduct compliance monitoring for VOCs. Without data from properly characterized non-mixed waste containers, there is no mechanism for allocating the relative contributions from mixed and non-mixed waste, or more generally, for allocating the relative contributions from HWA regulated units. RP, NMED's Exhibit A (Non-Mixed Waste) pg. 7; TR, S. Zappe at pg. 2440.

58. Without data from properly characterized TRU non-mixed waste containers, there is no mechanism for requiring the Applicants to take remedial action under the permit because NMED could not ascertain the source of the VOC limit violation. RP, NMED's Exhibit A (Non-Mixed Waste) pg. 7.
59. NMED imposed Permit Condition IV.B.2.b to address enforceability of other permit conditions in the HWA permit such as inspection, access to records and waste characterization information required to be kept under the permit. RP, NMED’s Exhibit A (Non-Mixed Waste) pg. 7 and TR, S. Zappe at pg. 2440.

60. The Applicants are required to characterize all TRU non-mixed waste in accordance with the WAP to comply with environmental performance standards under 20 NMAC 4.1.500 (incorporating 40 CFR Part 264 Subpart X). RP, NMED’s Exhibit A (Non-Mixed Waste) pp. 7-8 and TR, S. Zappe at pp. 2442 - 45.

61. If Applicants do not characterize all TRU waste, including non-mixed waste under the WAP in the HWA permit, prohibited, incompatible and non-permitted wastes may be disposed of at WIPP that will affect human health and the environment. RP, NMED’s Exhibit A (Non-Mixed Waste) pp. 7 - 8 and TR, S. Zappe at pg. 2441.

62. If Applicants do not characterize TRU non-mixed waste under the WAP in the HWA permit, VOCs in non-mixed waste containers will result in unregulated emissions in direct violation of the environmental performance standards. Id.

63. If Applicants do not characterize TRU non-mixed waste under the WAP in the HWA permit, the management of improperly characterized waste could threaten the safe operation of WIPP. Id.
64. NMED’s imposition of Permit Condition IV.b.2.b. reflects a critical commitment by the Applicants which cannot be changed without affecting the completeness and accuracy of the application. RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 8; TR, S. Zappe at pp. 2445 - 55.

65. The Applicants never disclosed or informed NMED in the permit application that TRU waste (non-mixed) would be disposed of in proposed HWA-regulated units prior to permit issuance; to the contrary, the Application contained the Applicants’ express commitment to manage and characterize “all TRU waste” as “mixed waste” pursuant to the permit. RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 8 and TR, S. Zappe at pg. 2454.

66. NMED interprets the Application to state that the WIPP facility would not be used for the permanent disposal of TRU waste (mixed and non-mixed) until the WIPP facility had obtained a hazardous waste permit. TR, S. Zappe at pg. 2472.

67. The Applicants’ decision to dispose of TRU waste that is “non-mixed” prior to permit issuance calls into question the accuracy and completeness of the Application because it constitutes significant change that would be a major modification to the permit application. RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 8 and TR, S. Zappe at pg. 2454.
68. If Applicants had informed NMED that they intended to segregate waste and dispose of TRU "non-mixed" waste prior to permit issuance, NMED would have requested additional information regarding: (a) would the "non-mixed" waste be disposed of in underground HWDUs or HWA-regulated units or be segregated; (b) how the "non-mixed waste" would be characterized; (c) the quantity of "non-mixed waste"; (d) the possible emissions of VOCs from WIPP by non-mixed waste; and (e) the regulatory authority in which disposal would occur. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 8 and TR, S. Zappe at pp. 2449 and 2451.

69. If Applicants had informed NMED that they intended to segregate waste and dispose of TRU "non-mixed waste" in HWA-regulated units, NMED would have three regulatory options: (1) order the Applicants to submit a new revised application reflecting the determination to dispose of non-mixed waste; (2) due to the fact the decision occurred after the application was deemed complete, the agency could have requested additional information pursuant to 40 CFR §124.3(c); or (3) deny the permit on the ground that the information submitted was false or misleading. RP, NMED's Exhibit A (Non-Mixed Waste) at pg. 8 and TR, S. Zappe at 2452.

70. If the Applicants no longer intend to manage and characterize all TRU waste in accordance with the WAP, the application is incomplete and inaccurate and NMED would recommend remand to allow the Applicants to submit a revised application.
reflecting the true and accurate nature of Applicants activities at WIPP. RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 9.

71. At the public hearing, NMED witness Mr. Steve Zappe testified that the Department would recommend certain changes to Permit Condition IV.B.2.b to clarify the Department’s intent. The term “any unit” was intended to mean “any Underground HWDU.” RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 1 and TR, S. Zappe at pg. 2424.

72. At the public hearing, NMED witness Mr. Steve Zappe testified that the Department would recommend that Permit Condition IV.B.2.b be revised to provide that “permittees not dispose TRU mixed waste in any HWDU if the HWDU contains non-mixed TRU waste not characterized in accordance with the requirements of the WAP.” RP, NMED’s Exhibit A (Non-Mixed Waste) at pg. 1 and TR, S. Zappe at pp. 2426 - 27.

73. At the public hearing, NMED witness Mr. Steve Zappe clarified that the justification for this permit revision is to clarify the Department’s intent and ensure that unauthorized or unpermitted wastes are not disposed of in HWA-regulated units at WIPP that have not been characterized in accordance with the WAP. TR, S. Zappe at pp. 2424, 2426 - 27. This permit revision is justified by the same three broad reasons
supportive of Permit Condition IV.b.2.b. Id. See also RP, NMED's Exhibit A (Non-Mixed Waste) at pg 1.

74. The Applicants presented no written or oral comment, including rebuttal testimony, in the record disputing the regulatory or technical basis for imposing Permit Condition IV.B.2.b.

75. The Applicants' written comment of December 24, 1998 objected to Permit Condition IV.B.2.b on legal grounds that it may be "outside the scope of NMED's regulatory authority." RP, No. 15 (Comment No. 155 submitted December 24, 1998).

76. In written comment dated December 22, 1998, the Applicants suggested changing the term in Permit Condition IV.B.2.b. "identical to" to "in accordance with." Id.

77. In written comment submitted January 19, 1999, however, the Applicants stated that "implementation of both of the following two conditions will satisfy the Permittees' concerns regarding Comment No. 155:"

The Permittees shall not dispose of non-mixed TRU waste in any unit specified in this Module once this permit becomes effective unless such waste is characterized in a manner identical to that substantially complies with the requirements of the WAP as specified in Permit Module II.C.1.
RP, No. 36, Applicants’ Executive Summary No. 1.1.4, Comment No. 155 (filed January 19, 1999).

78. The Applicants presented no written or oral public comment in the record supportive of inclusion of the term “substantial compliance” in Permit Condition IV.B.2.b.

79. NMED cannot recommend Applicants’ suggested revision to the term “substantial compliance” because this term is inappropriate for a permit, vague and impossible to enforce. The elements of the WAP are measured in terms of full, not substantial compliance. Headspace gas requirements requires 100% sampling and that each container be sampled. TR, S. Zappe at pp. 2458 -2458.

80. NMED cannot recommend the Applicants’ revision to the phrase “once the permit becomes effective” because it is unnecessary and improper for a permit condition. See NMED’s Exhibit 1 (Response to Comments).

81. At the public hearing, NMED recommended changing the term “in a manner identical to” to “in accordance with” as suggested in Applicants’ December 22, 1998 public comment. TR, S. Zappe at pp. 2424 - 25. The term “in accordance with” reflects the Department’s intent more accurately to ensure that all TRU waste is characterized in accordance with the waste analysis plan.” Id.
82. In written public comment from January 19, 1999, the Applicants suggested NMED revise Permit Condition IV.B.2.b to make three substantive changes that address the circumstances in which "permittees are allowed to dispose of nonmixed TRU waste during the period before the permit becomes final." (Emphasis added). RP, No. 36 Applicants' Executive Summary No. 1.1.4, Comment No. 155 (filed January 19, 1999).

83. NMED cannot recommend Applicants' revision to allow permittees to dispose of TRU nonmixed waste "during the period before the permit becomes final" because this language is inappropriate for a final permit and is, on its face, applicable to the pre-permit period. TR, S. Zappe at pp. 2459 - 60.

84. NMED received public comments, not including the Applicants, regarding Permit Condition IV.B.2.b. See NMED's Exhibit (Response to Comments, January 19, 1999 and Public Hearing). The New Mexico Attorney General's Office supports the condition. RP, No. 57. Mr. Bill Lawless opposed the condition. RP, No. 68. The Los Alamos National Laboratory (LANL) submitted a comment, initially opposing the permit condition, which it subsequently withdrew on February 11, 1999. RP, Nos. 24, 27 and 73. SWIC stated that the HWA permit should be denied because Permit Condition IV.B.2.b was violated. Exhibit 1 (Oral Public Comment) S/DD.2-DH.1.

85. NMED response to these public commentors is incorporated herein. See NMED Exhibit 1 (Response to Comments, January 18, 1999 and Public Hearing).
B. CONCLUSIONS OF LAW

1. Based upon findings of fact number 1 through 17, the WIPP repository is a “miscellaneous unit” under 20 NMAC 4.1.300 (incorporating 40 CFR § 262.10) and subject to the standards under 20 NMAC 4.1.500 (incorporating 40 CFR § 264.600 (Subpart X)).

2. Based upon findings of fact number 1 through 17, all of the underground panels described in the permit application in which TRU waste will be disposed of at WIPP are “hazardous waste management units” under 20 NMAC 4.1.100 (incorporating 40 CFR § 260.10) and subject to regulation under the HWA.

3. Based upon findings of fact number 1 through 23 and 64 through 70, NMED’s review of the permit application and approval of the waste analysis plan (WAP) in the revised Draft Permit under 20 NMAC 4.1.500 (incorporating 20 CFR § 264.13) was based upon Applicants’ commitment to manage and characterize all TRU waste in accordance with the WAP for TRU waste to be disposed of in HWA-regulated units in accordance with the permit application submitted under 20 NMAC 4.1.900 (incorporating 40 CFR § 270.11(d) and 40 CFR § 270.14(b)(2) and (3)).

4. Based upon findings of fact numbers 1 through 23 and 64 through 70, NMED’s review of the permit application was premised upon information in the permit application that
TRU waste to be disposed of at WIPP in regulated units would not be segregated between "mixed" and "non-mixed" waste; all TRU waste would be managed and characterized as TRU "mixed waste"; and, further, that no TRU waste would be disposed of in a hazardous waste management unit prior to permit issuance. 20 NMAC 4.1.900 (incorporating 40 CFR § 270.11(d) and § 270.14(b)(2)); 20 NMAC 4.1.901.A.1 and .2.

5. Based upon findings of fact 18 through 39 and 52 through 85, there is substantial evidence in the record to support NMED’s determination that carcinogenic VOCs in the headspace gas of TRU mixed and non-mixed waste containers will release "hazardous constituents" into the air and may have adverse effects upon human health and the environment under 20 NMAC 4.1.500 (incorporating 40 CFR 264.601(c)).

6. Based upon findings of fact 18 through 39 and 52 through 85, the Applicants' presented no evidence in the record (written or oral comment, including rebuttal testimony) disputing the fact that VOCs may be present in the headspace gas of TRU non-mixed waste containers and may have adverse effects upon human health and the environment due to the migration of hazardous constituents in the air under 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(c)).

7. Based upon findings of fact 1 through 39 and 52 through 85, Permit Condition IV.B.2.b is supported by substantial evidence that characterization of all TRU waste in
accordance with the WAP in the HWA permit is necessary for TRU wastes to be disposed of in HWA-regulated units to ensure compliance with the environmental performance standards of 40 CFR Part 264 by preventing the release of carcinogenic VOCs that may have adverse effects upon human health and the environment due to the migration of hazardous constituents in the air under 20 NMAC 4.1.500 (incorporating 40 CFR 264.601(c)). NMSA 1978 § 74-4-4.2(c)( Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR 270.32(b)(2)).

8. Based upon findings of fact 34 through 39, USEPA does not regulate potential VOC emissions from TRU mixed and non-mixed waste containers under 40 CFR Parts 190 or 194 and there is no evidence in the record that these emissions are regulated under any other state or federal law.

9. Based upon findings of fact 34 through 39, USEPA does not impose any regulatory requirements for waste characterization at WIPP that are duplicative of the HWA and RCRA.

10. Based upon findings of fact 3 through 39 and 60 through 85, Permit Condition IV.B.2.b is reasonable and, in accordance with the HWA, was imposed to ensure that environmental performance standards of 20 NMAC 4.1.500 (incorporating 40 CFR § 264.600) are met as necessary to protect human health and environment from the release of carcinogenic VOCs that may have adverse effects upon human health and the environment.
environment due to the migration of hazardous constituents in the air under 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601(c)). NMSA 1978 § 74-4-4.2(c)( Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

11. Based upon findings of fact 1 through 50 and 60 through 85, Permit Condition II.C.3 specifies wastes that are prohibited under the HWA permit for disposal at WIPP as necessary to protect human health and the environment as required under 20 NMAC 4.1.900 (incorporating 40 CFR §270.32(b)(2)).

12. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b is reasonable and, in accordance with the HWA, necessary to protect human health and the environment by ensuring that Applicants properly characterize all TRU waste destined for disposal in a HWA-regulated unit in accordance with the WAP to ensure that no prohibited, incompatible and non-permitted wastes are disposed of at WIPP as authorized under Section 74-4-4.2(c) of the HWA, and 20 NMAC 4.1.500 and incorporating 40 CFR § 264.601 and 40 CFR 270.32(b)(2)).

13. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b. is reasonable and, in accordance with the HWA, necessary to protect human health and the environment by ensuring that Applicants’ TRU waste destined for disposal in HWA-regulated units has undergone waste characterization for headspace gas, acceptable knowledge, radiography and solids sampling as necessary to demonstrate that
Applicants' will not dispose of wastes that are prohibited under the HWA permit.

NMSA 1978 § 74-4-4.2(c) (Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

14. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b is reasonable and, in accordance with the HWA, serves to ensure the enforceability of Permit Condition IV.D.2.b (room-based VOC concentration limits) by requiring waste characterization of TRU non-mixed waste disposed of in HWA-regulated units as necessary to protect human health and the environment. NMSA 1978 § 74-4-4.2(c) (Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

15. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b is reasonable and, in accordance with the HWA, serves to ensure the enforceability of Permit Condition IV.D.2.b by requiring information regarding all TRU wastes as necessary to identify average VOC concentrations on a room and panel basis to determine compliance with the permit concentration limits for VOCs as authorized under 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601)). NMSA 1978 § 74-4-4.2(c) (Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

16. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b. is reasonable, and in accordance with the HWA, serves to ensure the enforceability of Permit Condition IV.D.2.b. which requires the WWIS to be capable of generating a report
identifying the average VOC concentrations on a room and panel basis from all TRU waste containers, as necessary to protect human health and the environment. NMSA 1978 § 74-4-4.2(c)( Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

17. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b is reasonable and, in accordance with the HWA, serves to ensure the enforceability of Permit Condition IV.F.2 by requiring compliance monitoring for VOCs from all TRU waste containers as necessary for NMED to determine compliance with the HWA permit and to protect human health and the environment. NMSA 1978 § 74-4-4.2(c)( Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

18. Based upon findings of fact 1 through 85, Permit Condition IV.B.2.b serves to ensure the enforceability of permit conditions related to inspection, access to records and waste characterization information required to be kept under the permit as necessary for NMED to determine compliance with the HWA permit. NMSA 1978 § 74-4-4.2(c)(Repl. Pamp. 1993) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

19. Based upon findings of fact 1 through 17, 64 through 85, Permit Condition IV.B.2.b’s requirement to characterize all TRU waste destined for disposal in HWA-regulated unit at WIPP reflects a critical commitment in the permit application which cannot be
changed without affecting the completeness and accuracy of the permit application,
under 20 NMAC 4.1.900 (incorporating 40 CFR § 270.10(c) and 40 CFR § 270.11(d)).

20. Based upon findings of fact 1 through 17, 64 through 85, the permit application and the
administrative file in which the draft and revised draft permit was issued was based
upon Applicants’ commitment to manage and characterize all TRU waste as “mixed
waste” under the HWA permit. 20 NMAC 4.1.901.A.1 and 2.

21. Based upon findings of fact 1 through 17, 64 through 85, NMED would consider the
permit application to be both incomplete and inaccurate under 20 NMAC 4.1.900
(incorporating 40 CFR §270.10(c) and 40 CFR § 270.11) if Applicants’ disposed TRU
non-mixed waste which has not been managed or characterized in accordance with the
requirements of the HWA permit.

22. Based upon findings of fact 71 through 85, NMED’s revisions to Permit Condition
IV.B.2.b. as presented at the public hearing are reasonable and supported under
the HWA.

23. Based upon findings of fact 71 through 85, NMED’s determination to not adopt certain
revisions to Permit Condition IV.B.2.b as proposed by the Applicants in written
comment submitted on January 19, 1999 is reasonable and supported under the HWA.
24. Based upon findings of fact 1 through 85, the Applicants have not met their burden in challenging NMED's determination to impose Permit Condition IV.B.2.b and presenting substantial evidence that this condition is unreasonable or inconsistent with the HWA. See e.g., 20 NMAC 4.1.901.A.E.6 and 20 NMAC 1.4.400.A. See also NMED's Memorandum of Law In Support of Findings of Fact and Conclusions of Law (Non-Mixed Waste).
2. CONFIRMATORY VOC MONITORING PROGRAM

A. FINDINGS OF FACT

1. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601) state:

   A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to ... detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit ... Protection of human health and the environment includes, but is not limited to ... 

   (c) Prevention of any release that may have adverse effects on human health and the environment due to migration of waste constituents in the air.

   RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XV, NMED Witness, David Walker, pp. 2920-2921.

2. NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR § 264.602) state:

   Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with §§264.601 ... as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.
3. The final HWA permit requires the Applicants to implement the air monitoring program described in the Confirmatory Volatile Organic Compound Monitoring Program (VOC Monitoring Program) within thirty (30) calendar days of permit issuance, and until the certified closure of all Underground HWDUs. RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XV, D. Walker, pp. 2917-2921.

4. NMED required the VOC Monitoring Program to confirm compliance with the environmental performance standard for the Underground HWDUs and to provide a mechanism for implementing remedial action in the event of noncompliance. RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XV, D. Walker, pp. 2917, 2921.

5. The containers of TRU mixed waste to be disposed in the Underground HWDUs may contain VOCs in the vapor state within the headspace of the containers, which will diffuse across filter vents, enter the air in an Underground HWDU, become entrained in the exhaust air, and migrate through the mine ventilation system to the atmosphere at the outlet of the mine ventilation exhaust shaft. RP, NMED's Exhibit A (VOC Monitoring, VOC Concentration Limits); TR XV, D. Walker, pp. 2923-2924.

6. NMED specified the environmental performance standard for the prevention of a VOC release to the ambient air that may adversely effect human health and the environment as
follows: the total individual risk associated with exposures to VOCs in the exhaust air from the WIPP repository (assuming a minimum running annual average mine ventilation rate of 260,000 standard cubic feet per minute (scfm)) shall not exceed the following acceptable risk levels: (1) for a resident living at the WIPP site boundary, a total individual risk from exposure to carcinogens and potential carcinogens of one in a million \(10^{-6}\); (2) for a WIPP non-waste surface worker, a total individual cancer risk from exposure to carcinogens and potential carcinogens of one in one hundred thousand \(10^{-5}\); and (3) for a resident living at the WIPP site boundary and a WIPP non-waste surface worker, a hazard index from exposure to non-carcinogens of less than one \(1.0\). RP, NMED’s Exhibit A (VOC Concentration Limits); TR Vol. XV, D. Walker, pp. 2918-2920.

7. NMED balanced several factors in specifying the environmental performance standard for WIPP workers: (a) WIPP workers are the human receptors potentially receiving the largest chronic exposure to VOCs emitted by the WIPP; (b) there is a potential for WIPP workers to be stationed in the exhaust shaft area; (c) WIPP workers may include persons at greater risk due to age, disability, or medical condition; (d) WIPP workers might be exposed to elevated VOC concentrations resulting from a roof fall in an Underground HWDU; (e) the Applicants did not propose to use personal protection equipment, such as self contained breathing apparatus, in the Underground HWDDUs; (f) the Applicants could exert control over worker occupational exposures; (g) WIPP workers are covered by the OSHA occupational exposure standards and health and safety regulations of the Mine
Safety and Health Administration (MSHA); (h) WIPP workers would not be exposed as long as residents living at the WIPP site boundary (e.g., approximately 10 years versus 35 years); and (i) occupational exposures typically are not evaluated in facility risk assessments. RP, NMED’s Exhibit A (VOC Concentration Limits); TR Vol. XV, D. Walker, pp. 2929-2931.

8. Because the WIPP non-waste surface worker is the human receptor potentially receiving the largest chronic VOC exposure, NMED established VOC concentrations in the headspace of containers to keep this worker’s total individual risk from VOCs in the WIPP exhaust air below the acceptable risk level. RP, NMED’s Exhibit A (VOC Concentration Limits); TR Vol. XV, D. Walker, pp. 2932-2933; TR Vol. XVI, D. Walker, pp. 2983-2984.

9. NMED established VOC Room-Based Concentration Limits (VOC limits) for nine (9) VOCs because they represent approximately ninety (99) percent of the risk due to air emissions from the Underground HWDUs. See Permit Tables IV.D.1 and IV.F.2.c. RP, NMED’s Exhibit A (VOC Concentration Limits); TR Vol. XV, D. Walker, p. 2918.

10. NMED calculated the VOC limits using most of the Applicants’ assumptions, equations, methodology, and models, except that NMED (a) decreased the minimum mine ventilation rate (425,000 scfm to 260,000 scfm); and (b) changed the Reference
Concentration (RfC) for 1,1,1-trichloroethane to a compound-specific value. RP, NMED’s Exhibit A (VOC Concentration Limits); TR XV, D. Walker, pp. 2931-2932.

11. NMED obtained the VOC limits by (a) apportioning the total carcinogenic risk for the WIPP non-waste worker equally between the carcinogenic VOCs; (b) apportioning the total non-carcinogenic hazard quotient for the WIPP non-waste worker equally between the non- carcinogenic VOCs; (c) back-calculating an initial set of values; (d) revising the values to reflect their Lower Explosive Limits (LELs) and Immediately Dangerous to Life and Health (IDLH) Levels, and lower values requested by the Applicants; (e) revising the values to reflect a correction in the equation used to calculate VOC concentrations in the closed room accident scenario; and (f) readjusting the values to reflect equal apportionment of carcinogenic risk and hazard quotient. RP, NMED’s Exhibit A (VOC Concentration Limits); TR XV, D. Walker, pp. 2933-2942.

12. NMED is authorized to impose VOC limits based on LELs under 20 NMAC 4.1.500 (incorporating 40 CFR §264.31): “Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or . . . which could threaten human health or the environment.” Because a closed disposal room is isolated from the mine ventilation system, VOCs in the headspace would diffuse through container filters, but not be removed by mine ventilation air, resulting in equilibration at the approximate average concentration in the containers. As a result, a roof fall in a closed disposal room
13. NMED is authorized to impose VOC limits based on IDLH levels under (a) 20 NMAC 4.1.500 (incorporating 40 CFR § 264.31)(facilities must be designed, constructed, maintained, and operated to minimize threats to human health and the environment); (b) 20 NMAC 4.1.500 (incorporating 40 CFR § 264.601(c))(establishing an environmental performance standard preventing air releases which may have an adverse effect on human health or the environment); and (c) 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2))(authorizing case-specific conditions deemed necessary to protect human health and the environment, including conditions not expressly required by RCRA). The probability of the accident scenario (e.g., roof fall) in Panel 1 range from one in one hundred (1 in 100) to one in ten thousand (1 in 10,000). Once the probability of a rock fall is greater than zero, the simplest and most effective method of protecting human health and the environment in a rock fall event is to impose VOC limits on each disposal room. The VOC limits based on IDLH levels are appropriate given the unique character and potential hazards of underground geological repositories, such as enclosed disposal operations and roof falls. RP, NMED's Exhibit A (VOC Concentration Limits); TR Vol. XV, D. Walker, pp. 2936-2940; TR XVI, D. Walker, pp. 2978-2980.

14. The VOC limits should not impose an operational problem for the Applicants. For carbon tetrachloride and chloroform, the VOC limits are greater than requested in the
Application. For 1,2-dichloroethane and 1,1,1-trichloroethane, the VOC limits are more than two orders of magnitude greater than the "weighted average headspace concentrations" which the Applicants asserted are representative of waste throughout the DOE complex. For methylene chloride, the VOC limit is the same as requested in the Application. For the remaining VOCs, the VOC limits are less than one order of magnitude different from those requested in the Application. RP, NMED’s Exhibit A (VOC Concentration Limits); TR XV, D. Walker, pp. 2942-2943.

15. The VOC Monitoring Program requires the Applicants to collect air samples from two (2) monitoring stations, VOC-A and VOC-B, located in the E-300 drift. At Monitoring Station VOC-A, located downstream of Panel 1, the Applicants measure the VOC concentrations in the mine ventilation exhaust air (e.g., VOC concentrations attributable to open and closed panels containing CH TRU mixed waste). Station VOC-A will remain at the same location during the term of the permit, because the exhaust air from the three (3) Underground HWDUs currently authorized for waste disposal will flow past this station. At Monitoring Station VOC-B, located upstream of the open panel, the Applicants measure background VOC concentrations (e.g., attributable to upstream sources). RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XV, D. Walker, pp. 2944-2946.

16. The VOC Monitoring Program requires the Applicants to begin VOC sampling at Monitoring Stations VOC-A and VOC-B within thirty (30) calendar days of permit issuance, and to continue sampling until the certified closure of all Underground HWDUs.
The VOC Monitoring Program must continue until the end of WIPP's operational period for several reasons: (a) the Applicants must confirm compliance with the environmental performance standard until the end of WIPP's operational period; (b) the Applicants must confirm the assumptions underlying the VOC limits, including assumptions regarding expected emissions from closed panels; and (c) the Applicants must monitor VOC emissions due to waste radiolysis during the disposal phase. RP, NMED's Exhibit A (VOC Monitoring); TR, Vol. XV, D. Walker, pp. 2946-2947.

17. The VOC Monitoring Program requires the Applicants to sample at Monitoring Stations VOC-A and VOC-B at least two (2) times per week. This frequency of sampling is acceptable, because the physical conditions in the disposal rooms are not expected to change rapidly and the sample results would be representative of the incremental increase in waste disposed in the room. Since the environmental performance standard is based on long-term average exposures, minor variations in the VOC concentrations emitted from an Underground HWUD would not be cause for concern. RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XV, D. Walker, p. 2948.

18. The VOC Monitoring Program requires the Applicants to use a VOC sampling method based on the concept of pressurized sample collection as specified in the EPA Compendium Method TO-14. The TO-14 sampling concept uses 6-liter SUMMA® passivated stainless-steel canisters to collect integrated air samples at each sample location. The samples will be analyzed using gas chromatography/mass spectrometry.
Laboratory analytical procedures have been developed based on the concepts contained in both EPA Compendium TO-14 and the draft *EPA Contract Laboratory Program - Statement of Work (CLP-SOW)* for *Volatile Organics Analysis of Ambient Air in Canisters*. These procedures are appropriate because the EPA Compendium TO-14 method is an EPA-recognized sampling concept for VOC sampling and speciation. It can be used to provide integrated samples, or grab samples, and compound quantitation for a broad range of concentrations. The canister sampling system and GC/MS analytical method are particularly appropriate because a relatively large sample volume is collected, and multiple dilutions and reanalyses can be performed to ensure identification and quantification of target VOCs within the working range of the method. Low VOC concentrations can be measured, because the contract-required quantitation limits (CRQL) proposed by the EPA in the CLP-SOW are 5 parts per billion by volume (ppbv) or less for the nine target compounds. RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XV, D. Walker, pp. 2948-2950.

19. The VOC Monitoring Program requires the Applicants to collect a VOC sample from each monitoring station on designated sample days, validate the laboratory analytical data, and evaluate whether the VOC emissions exceed the specified Concentrations of Concern (COCs). RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2967, 2971-2972.
20. COCs are a mechanism for determining compliance with the VOC limits, because the VOC concentrations measured at Monitoring Station VOC-A cannot be directly compared with the VOC limits. NMED derived the COCs by multiplying the target exhaust shaft concentration for each VOC by the ratio of the overall mine ventilation rate (260,000 scfm) and the mine ventilation rate through the E-300 drift (130,000 scfm). The ratio is appropriate because there is a direct relationship between (a) the actual average VOC concentrations in the headspace of containers in an Underground HWDU and the expected target VOC concentrations at the exhaust shaft outlet; and (b) the expected VOC concentrations at the exhaust shaft outlet and the COCs at Monitoring Station VOC-A. If the VOC concentrations measured at Monitoring Station VOC-A (e.g., the difference between the VOC concentrations measured at Monitoring Stations VOC-A and VOC-B) are below the COCs, NMED can determine whether the Applicants are complying with the VOC limits and the assumptions underlying the VOC limits are accurate. RP, NMED's Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2972-2974.

21. NMED calculated the COCs using the permitted mine ventilation rate of 260,000 scfm and the expected flow rate at Monitoring Station VOC-A of 130,000 scfm. However, because these rates may vary at the time of sampling, the Applicants must measure and record these rates during each sampling event. In addition, the Applicants must measure and record the temperature and pressure during each sampling event for conversion to
standard flow rates. RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp.2967-2971.

22. The Applicants will use analytical data collected under typical mine ventilation flow rate conditions without further manipulation. The Applicants subtract the concentration of each target VOC detected at Monitoring Station VOC-B from the concentration detected at Monitoring Station VOC-A. The resulting VOC concentration represents the concentration of VOCs being emitted from the open and closed Underground HWDUs upstream of Station VOC-A. RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2967-2971.

23. The Applicants will normalize analytical data collected under atypical mine ventilation flow rate. The Applicants must normalize analytical data collected under such conditions because variation in these conditions directly and significantly affect the measurable VOC concentrations. The Applicants subtract the normalized concentration of each target VOC detected at Monitoring Station VOC-B from the normalized concentration detected at Monitoring Station VOC-A. The resulting VOC concentration represents the concentration of VOCs being emitted from the open and closed Underground HWDUs upstream of Station VOC-A. RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2967-2971.
24. The Applicants must compare the calculated VOC emission concentration (e.g., the difference between Monitoring Stations VOC-A and VOC-B) directly to relevant COC. If the value exceeds the COC, the Applicants must notify the Secretary in writing, within five (5) working days of obtaining validated analytical results. RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2974-2975.

25. The Applicants must calculate the running annual average concentration for each target VOC by averaging the calculated VOC emission concentration (e.g., the difference between Monitoring Stations VOC-A and VOC-B) for each air sampling event with the data collected during the previous twelve (12) months. If this value exceeds the COC, the Applicants must notify the Secretary in writing, within five (5) working days. In addition, the Applicants must undertake remedial action, including the cessation of disposal in the active disposal room and the installation of ventilation barriers. If this value exceeds the COC for six (6) consecutive months, the Applicants must close the affected Underground HWDU. These requirements provide the sole mechanism to prevent harm to the public and the environment if VOC concentrations exceed the COCs despite the Applicants’ compliance with other conditions of the permit, such as the VOC limits. RP, NMED’s Exhibit A (VOC Monitoring); TR Vol. XVI, D. Walker, pp. 2975-2976.

26. The final HWA permit must require the Applicants to maintain a minimum mine ventilation exhaust rate. This rate is required because of the direct relationship between the rate and VOC concentrations at the exhaust shaft outlet. A significant decrease in this
rate would cause an increase in VOC concentrations at the exhaust shaft outlet, possibly causing a violation of the environmental performance standard. RP, NMED’s Exhibit A (VOC Monitoring, Mine Ventilation Rates); TR Vol. XVI, D. Walker, p. 2988.

27. The minimum mine ventilation exhaust rate should be a running annual average of 260,000 scfm (or 60,000 scfm in the filtration mode). This rate allows the Applicants to operate the ventilation system at lower flow rates when required for safe operation (e.g., maintenance) or events beyond the Applicants’ control (e.g., power outages). While the minimum mine ventilation exhaust rate must be maintained in the long term to comply with the VOC limits, infrequent short term variations do not pose a threat to human health and the environment since the risk assessment used to calculate the VOC limits is based on long-term exposure (e.g., 35 years). RP, NMED’s Exhibit A (Mine Ventilation Rates); TR Vol. XVI, D. Walker, pp.2987-2989.

28. To implement the running annual average requirement, the Applicants must develop, pursuant to the schedule of compliance specified in the final permit, a ventilation rate monitoring plan describing (a) the objective; (b) the program design; (c) the procedures; (d) equipment calibration and maintenance; (e) data evaluation, reporting and recordkeeping; and (f) quality assurance. The Applicants must measure and record the mine ventilation exhaust rate on an hourly basis, calculate the running annual average mine ventilation exhaust rate on a monthly basis, and report the results in the Confirmatory
29. The final HWA permit must require the Applicants to maintain a minimum active room ventilation rate of 35,000 scfm when workers are present in the room. This rate is based on the direct relationship between the rate and the underground worker exposure concentration of VOCs in an open room. A decrease in the active room mine ventilation rate would cause an increase in the concentration of VOCs in an open room, possibly causing a violation of the environmental performance standard. RP, NMED’s Exhibit A (VOC Monitoring, Mine Ventilation Rates).

30. The minimum active room ventilation rate should not be a running annual average or other variable rate. The rate must ensure that during normal operations, WIPP workers will not be exposed to VOC concentrations greater than the LELs and IDLH levels. The Applicants did not propose or justify an alternate specific minimum active room ventilation rate that would ensure that during normal operations and after a roof fall in an open panel these workers would not be exposed to VOC concentrations greater than the LELs and IDLH levels. RP, NMED’s Exhibit A (Mine Ventilation Rates).

31. The Applicants must measure and record the active room ventilation rate on an hourly basis, record the date and time when workers are present in an active disposal room, evaluate whether the active room ventilation rate has been met on a monthly basis, and
32. A commenter suggested that the mine ventilation rates specified in Condition IV.E.3.c does not provide sufficient flexibility for the safe and efficient operation of the WIPP underground. RP, NMED's Exhibit 1 (Response to Comments, Module IV, p. 23; Mine Ventilation Rates).

33. NMED agrees that the mine exhaust ventilation rate in Condition IV.E.3.c does not provide sufficient flexibility for the safe and efficient operation of the WIPP underground. Response to Comments, Module IV, p. 23; Findings of Fact, supra; Mine Ventilation Rates).

34. At the public hearing, NMED proposed that a schedule for the Applicants to develop a system for ensuring compliance with the mine exhaust ventilation rate, while retaining flexibility to vary the rate to ensure the safe and efficient operation of the WIPP underground. RP, NMED's Exhibit A (Mine Ventilation Rates), Response to Comments, Module IV, p. 23; Findings of Fact, supra.

35. NMED does not concur with the suggestion that the active room ventilation rate in Condition IV.E.3.c does not provide flexibility for the safe and efficient operation of the
WIPP underground. See RP, NMED’s Exhibit A (Mine Ventilation Rates). Response to Comments, Module IV, p. 23; Findings of Fact, supra.

B. CONCLUSIONS OF LAW

1. Based upon findings of fact 1 through 31, NMED’s determination to require the Applicants to implement a Confirmatory VOC Monitoring Program is, in accordance with law, authorized pursuant to 20 NMAC 4.1.500 (incorporating 40 CFR §§ 264.31, 264.601, and 264.602) and 20 NMAC 4.1.900 (incorporating 40 CFR § 270.32(b)(2)).

2. Based upon findings of fact 1 through 31, NMED’s decision to require the Applicants to implement a Confirmatory VOC Monitoring Program is reasonable and based upon substantial evidence.

3. Based upon findings of fact 1 through 31, Applicants have not met their burden in challenging NMED’s determination to require a Confirmatory VOC Monitoring Program or presenting substantial evidence that this requirement is unreasonable or inconsistent with the HWA. See 20 NMAC 901.A.E.6 and 20 NMAC 1.4.400.A.

4. Based upon findings of fact 1 through 35, NMED’s decision to revise the mine exhaust ventilation rate in Condition IV.E.3.c as suggested above is reasonable and consistent with the HWA and regulations.
5. Based upon findings of fact 1 through 35, NMED's decision not to revise the active room ventilation rate in Condition IV.E.3.c as suggested above is reasonable and consistent with the HWA and regulations.
C. MODULE V

1. DETECTION MONITORING PROGRAM

A. FINDINGS OF FACT

1. Ground-water monitoring requirements, including requirements for a Detection Monitoring Program, apply to owners or operators of facilities that treat, store or dispose of hazardous waste. 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(a)(1)).

2. The purpose of the Detection Monitoring Program is to establish background ground-water quality and monitor indicator parameters and waste constituents that provide a reliable indication of the presence of hazardous constituents in the ground water. RP No. 5; AR No. 981134 (Revised Draft Permit, Permit Module V.A).

3. TRU mixed waste intended by the Applicants for storage and disposal at WIPP contains hazardous constituents which may have adverse effects on human health and the environment if improperly managed, stored or disposed. RP No. 5; AR No. X (WIPP RCRA Part B Permit Application); AR No. 981134 (Revised Draft Permit); RP, NMED’s Exhibit A (Detection Monitoring Program) pg. 1.

4. 20 NMAC 4.1.500 (incorporating 40 CFR §264.601) provides that permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, detection and monitoring.
5. The Detection Monitoring Program is a detection and monitoring requirement under 20 NMAC 4.1.500 (incorporating 264.601).

6. Pursuant to 20 NMAC 4.1.500 (incorporating 264.601(a)) protection of human health and the environment includes, but is not limited to, prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment.

7. A Detection Monitoring Program is the only method available to detect a release which may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment. RP, NMED’s Exhibit A (Detection Monitoring Program) pg. 4.

8. The owner or operator of a hazardous waste facility may seek a waiver from the Detection Monitoring Program requirements (Waiver) by demonstrating that there is no potential for migration from a regulated unit during the active life of the regulated unit and the post-closure care period. 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(b)(4)).

9. The Applicants requested a Waiver from the ground water monitoring requirement. RP No. 5; AR Nos. J, R and X; RP NMED Exhibit A (Detection Monitoring Program) pg. 1.
10. The Waiver demonstration must base any predictions related to the potential for migration on assumptions that maximize the rate of liquid migration. 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(b)(4)).

11. In a March 14, 1996 Notice of Deficiency, NMED determined the WIPP permit application was deficient because it lacked a groundwater monitoring program and failed to adequately demonstrate that hazardous constituents will not migrate beyond the point of compliance during the post-closure period. The Notice of Deficiency states:

The permit application, in both Chapters D and E, fails to adequately demonstrate that hazardous constituents will not migrate beyond the point of compliance during the post closure period (see General Comment 1, Chapter E). Revise the permit application to include a pre-disposal groundwater monitoring plan designed to establish concentrations of hazardous constituents prior to emplacement of waste in the repository. Furthermore, in the event that a groundwater monitoring waiver request is denied, revise the permit application to include a post-closure groundwater monitoring plan in accordance with 20 NMAC 4.1, Subpart V, §264 Subpart F. Ensure the groundwater monitoring plan is complementary to post-closure monitoring required by 40 CFR §194.42(d).

RP No. 5; AR No. 960308; RP NMED Exhibit A (Detection Monitoring Program) pg. 1.

12. In a March 29, 1996 letter to the Applicants, NMED further clarified its intent with respect the Applicants’ waiver request and Detection Monitoring requirements:

With regard to your request for a groundwater monitoring waiver described in Chapter E in the WIPP RCRA Part B, ... HRMB is stating its intent to draft a permit which requires DOE/WID to include a groundwater monitoring plan in accordance with 20 NMAC 4.1, Subpart V, §264.
Subpart F... This requirement for a detection monitoring plan is in addition to that requested in Chapter D, General Comment 8, on page 40 of the NOD. 
RP No. 5; AR No. 960325.

13. Based on NMED’s evaluation of the permit application, including the Waiver request, NMED determined that the Applicants failed to demonstrate that there was no potential for migration of liquid because NMED could not determine whether the Applicants had based their predictions for liquid migration potential on assumptions that maximized the predicted rate of liquid migration. RP, NMED Exhibit A (Detection Monitoring Program) pp. 2-3.

14. The Applicants did not challenge either NMED’s requirement for the Detection Monitoring Program requirement or NMED’s determination regarding the Waiver demonstration in written public comments on either the Draft Permit or revised Draft Permit. RP Nos. 15 and 36; AR No. AX; RP, NMED Exhibit A (Detection Monitoring Program) pg. 2.

15. The Applicants’ written comments on the revised Draft Permit support NMED’s decision to impose a Detection Monitoring requirement. Comment 274 states:

In response to NMED’s requests pursuant to these regulations [20 NMAC 4.1.500 (incorporating 40 CFR §§264, Subpart F, and 264.601)], the Permittees have developed a groundwater detection monitoring plan (“DMP”). See DMP at Draft Permit Attachment L. The DMP is designed to detect and assess releases to groundwater resources at WIPP by determining the background groundwater quality and performing detection monitoring during the facility disposal phase.
RP No. 36 (Applicants’ January 19, 1999 Written Comments on the Revised Draft Permit, Comment 274).

16. The New Mexico Attorney’s General Office supports NMED’s decision to require a Detection Monitoring Program. AR No. 980828; RP No. 57.

17. The Carlsbad Department of Development and the City of Carlsbad oppose NMED’s decision to require a Detection Monitoring Program, but have provided no regulatory or technical justification as to why the Permittees do not have to comply with 20 NMAC 4.1.500 (incorporating 40 CFR §§264, Subpart F, and 264.601). RP No. 5; AR Nos. 980812 and 980828.

18. No Party or member of the public at the public hearing presented evidence which either challenged NMED’s determination to require the Detection Monitoring Program or NMED’s determination regarding the Waiver demonstration. TR.

19. The Applicants concur with NMED’s requirement for the Detection Monitoring Program. In describing monitoring requirements for the WIPP at the public hearing for issuance of the hazardous waste act permit, the Applicants state:

"There is the groundwater monitoring program or the detection monitoring program which will be implemented on the surface. This program is designed to determine if there have been any releases into the groundwater pathway of hazardous constituents from our facility."

TR pg. 102, lines 15-21, emphasis added.
B. CONCLUSIONS OF LAW

1. Based on Findings of Fact 1-13, the proposed Final Permit Module V regarding Detection Monitoring Requirements is a condition necessary to detect a release of hazardous constituents which may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §§264 Subpart F, and 264.601). 20 NMAC 4.1.901.A.8 and NMSA 1978 §74-4-4.2(c) (Repl. Pamp. 1993).

2. Based on Findings of Fact 1-13, the Permittees are required to implement a Detection Monitoring Program. 20 NMAC 4.1.500 (incorporating 40 CFR §§264.90(a)(1) and 264.601).

3. Based on Findings of Fact 1-13, the Detection Monitoring Program is a detection and monitoring requirement under 20 NMAC 4.1.500 (incorporating 264.601).

4. Based on Findings of Fact 1-13, the Applicants Waiver request as proposed in the WIPP RCRA Part B Permit Application was deficient because it failed to base predictions related to the potential for migration on assumptions that maximized the rate of liquid migration, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(b)(4)).

5. Based on Findings of Fact 1-19, NMED has properly determined that the Applicants have failed to meet the standard to waive WIPP from the Detection Monitoring Program.
requirement because the Applicants did not base predictions on the maximum rate of liquid migration as required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(b)(4)).

6. Based on Findings of Fact 1-13, Detection Monitoring Program requirements apply to miscellaneous units when necessary to comply with 40 CFR §§264.601 through 603. 20 NMAC 4.1.500 (incorporating 40 CFR §264.90(d)).

7. Based on Findings of Fact 1-13, NMED's proposed final HWA Permit condition regarding the Detection Monitoring Program is supported by substantial evidence and in accordance with law, necessary to detect and monitor any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment. 20 NMAC 4.1.500 (incorporating 40 CFR §§264 Subpart F, 264.601 & 601(a)).

8. Based on Findings of Fact 14-19 and Exhibit 1 (attached), NMED has duly considered all public comments received during the public comment period, has specified which provisions of the revised Draft Permit have been changed and has provided reasons for these changes in accordance with 20 NMAC §§4.1.901A.7 and 901.A.9.

9. Based on Findings of Fact 14-19 and Exhibit 1 (attached), no Party or member of the public has met their burden in challenging NMED's proposed final HWA Permit condition regarding the Detection Monitoring Program by presenting substantial evidence that this
condition is unreasonable or inconsistent with the Hazardous Waste Act. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
C. MODULE V

2. THE POINT OF COMPLIANCE FOR THE DETECTION MONITORING PROGRAM

A. FINDINGS OF FACT

1. The Permittees are required to implement a Detection Monitoring Program. See, supra, NMED's Imposed Conditions, Module V, Detection Monitoring Program; Exhibit 3, Propose Final Permit. RP No. 5; AR No. 981134; RP, NMED’s Exhibit A (Detection Monitoring Program) pp. 1-7.

2. The Detection Monitoring Program will establish background ground-water quality and monitor indicator parameters and waste constituents that provide a reliable indication of the presence of hazardous constituents in the ground water. RP No. 5; AR No. 981134; RP, NMED’s Exhibit A (Detection Monitoring Program) pp. 1-7.

3. As part of the requirement to establish a Detection Monitoring Program for WIPP, the Permittees are required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.95) to identify a Point of Compliance.

4. The Point of Compliance is the point at which the ground-water protection standard applies and at which ground-water monitoring must be conducted. 20 NMAC 4.1.500 (incorporating 40 CFR §264.95(a)); RP, NMED’s Exhibit A (Point of Compliance) pg. 1.
5. The Detection Monitoring Program, including the requirement to identify the Point of Compliance and Detection Monitoring Wells, constitutes a detection and monitoring requirement under 20 NMAC 4.1.500 (incorporating 40 CFR §264.601). RP, NMED's Exhibit A (Point of Compliance) pg. 5.

6. The WIPP shafts are the only possible pathway for release of hazardous constituents from the repository during the operational period of the facility. NMED’s Exhibit A, (Point of Compliance) pg. 3.

7. The aquifer most likely to be contaminated by a potential release of hazardous constituents from the repository is the Culebra Member of the Rustler Formation. NMED’s Exhibit A, (Point of Compliance) pg. 3.

8. A release of hazardous constituents to the uppermost aquifer underlying the HWDUs, the Bell Canyon Formation, is highly unlikely and is less likely than a release to the Culebra Member. NMED’s Exhibit A (Point of Compliance) pg. 3.

9. In the revised Draft Permit, NMED defined the Point of Compliance in Module V.B as follows:

   The point of compliance is the vertical surface located at the hydraulically downgradient limit of the Underground HWDUs that extends to the Culebra Member of the Rustler Formation [20 NMAC 4.1.500 (incorporating 40 CFR §264.601). RP, NMED's Exhibit A (Point of Compliance) pg. 5.}
10. The Applicants submitted written comments stating the Point of Compliance for the Detection Monitoring Program should be either the downgradient WIPP Site boundary or the downgradient detection monitoring wells. AR No. AX (Comment 108); RP No. 15 (Comment 181) and No. 36 (Comment 274).

11. Mr. Michael Overbay submitted a written comment on August 14, 1998 stating the point of compliance and the detection monitoring wells should be co-located. AR No. 980806.

12. No other comments or evidence regarding the location of the Point of Compliance were submitted to NMED during the public comment period. RP; TR.

13. In response to public comments, NMED proposes to change the Point of Compliance, specified in Module V.B of the proposed final HWA Permit as follows (proposed changes are indicated in redline/strikeout):

The point of compliance is the vertical surface located at the hydraulically downgradient limit of the Underground HDUs perpendicular to the groundwater flow direction at the DMWs that extends to the Culebra Member of the Rustler Formation [20 NMAC 4.1.500 (incorporating 40 CFR §§264.95, 264.601, and 264.602)]. The Permittees shall conduct the DMP at the DMWs specified in Table V.C.1, and as required by 20 NMAC 4.1.500 (incorporating 40 CFR §§264.98 and 264.601).
14. NMED’s proposed Point of Compliance extends to the Culebra Member of the Rustler Formation, the first potential migration pathway of hazardous constituents from the repository. RP, NMED’s Exhibit A (Point of Compliance) pp. 1-3.

15. EPA agrees that the location of the Point of Compliance for ground-water monitoring in the Culebra Member is appropriate when considering migration through the WIPP shafts. RP, NMED’s Exhibit A (Point of Compliance) pg. 3.

16. NMED’s proposed change to the Point of Compliance for the Permit Condition V.B of the proposed final HWA Permit is in accordance with EPA guidance on locating the Point of Compliance. RP, NMED’s Exhibit A (Point of Compliance) pg. 5.

17. NMED proposed change to the Point of Compliance is in accordance with EPA guidance on Detection Monitoring Program design. RP, NMED’s Exhibit A (Point of Compliance) pg. 3.

18. NMED’s proposed change to the Point of Compliance results in the location of the ground-water monitoring system at the Point of Compliance. RP, NMED’s Exhibit A (Point of Compliance) pp. 1-2.
19. NMED’s proposed change to the Point of Compliance ensures that the Permittees will monitor ground-water quality more than one mile upgradient of the facility boundary, which ensures that NMED will detect ground-water contamination long before a release, if any, reaches the WIPP Site boundary. RP, NMED’s Exhibit A (Point of Compliance) p. 4.

20. No ground-water monitoring wells which comply with the requirements of 20 NMAC 41.500 (incorporating 40 CFR Subpart F) currently exist at the WIPP Site boundary. RP, NMED Exhibit A (Point of Compliance) p. 7.

21. Location of the Point of Compliance at the WIPP Site boundary, as initially proposed by the Applicants, is not currently possible because no ground-water monitoring wells exist in this location; and this change would result in a distance of more than 1.5 miles between the downgradient limit of the waste management area and the Point of Compliance. RP, NMED Exhibit A (Point of Compliance) pp. 6-7.

22. The Applicants concur with NMED’s proposed change to the Point of Compliance in Condition V.B of the proposed final HWA Permit. In response to questioning by the NMED at the public hearing, the Applicants state:

Q. Okay. And to clarify, the point of compliance would actually only be the downgrading wells of those WQSP wells, correct?

A. That's correct.
Q. So based on your earlier testimony, where do the applicants conclude the point of compliance should be located?

A. It would be the vertical surface that's defined by the boundary of those wells.

Q. Of which wells?

A. Of the downgradient WQSP wells.

TR, N. Williams, p. 3394, lines 4-14. See also TR, N. Williams, p. 3394, lines 15-25 and p. 3395, lines 1-6.

23. The WQSP wells are the Detection Monitoring Wells identified under Permit Condition V.C.1. RP No. 5, AR No. 981134 (revised Draft Permit Condition V.C.1).
B. CONCLUSIONS OF LAW

1. Based on Findings of Fact 1-23, Condition V.B of the proposed final HWA Permit Module V regarding the Point of Compliance is a condition necessary to detect a release of hazardous constituents which may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment, as required by 20 NMAC 4.1.500 (incorporating 40 CFR §§264 Subpart F, and 264.601). 20 NMAC 4.1.901.A.8 and NMSA 1978 §74-4-4.2(c) (Repl. Pamp. 1993).

2. Based on Findings of Fact 1-4, the Permittees must install a ground-water monitoring system at the Point of Compliance as specified under 20 NMAC 4.1.500 (incorporating 40 CFR §264.95).

3. Based on Findings of Fact 1-9 and 13, Permit Module V of the proposed final HWA Permit which requires a Detection Monitoring Program and establishes the Point of Compliance constitutes detection and monitoring requirements under the 20 NMAC 4.1.500 (incorporating 40 CFR §264.601) environmental performances standard applicable to WIPP.
4. Based on Findings of Fact 1-9 and 13, the NMED-proposed Point of Compliance is supported by substantial evidence and in accordance with law, necessary to demonstrate compliance with the environmental performance standards of 20 NMAC 4.1.500 (incorporating 40 CFR §264.601).

5. Based on Findings of Fact 1-9 and 13, NMED’s proposed Point of Compliance as the vertical surface located perpendicular to the ground-water flow direction at the DMWs that extends to the Culebra Member of the Rustler Formation is supported by substantial evidence and in accordance with law, necessary to comply with the requirements of 20 NMAC 4.1.500 (incorporating 40 CFR §264, Subparts F and X).

6. Based on Findings of Fact 1-9 and 13, NMED’s proposed Point of Compliance is supported by substantial evidence and in accordance with law, necessary to comply with 20 NMAC 4.1.500 (incorporating 40 CFR §264.95), which requires that ground-water monitoring be conducted at the Point of Compliance.

7. Based on Findings of Fact 1-9 and 13, NMED’s proposed Point of Compliance is supported by substantial evidence and in accordance with law, necessary to comply with 20 NMAC 4.1.500 (incorporating 40 CFR §264.98(b)), which requires the co-location of the Point of Compliance and the ground-water monitoring system.
8. Based on Findings of Fact 1-9 and 13, NMED’s proposed Point of Compliance is consistent with applicable EPA guidance on Point of Compliance and Detection Monitoring Program requirements.

9. Based on Findings of Fact 10-23, the Applicants do not challenge NMED’s proposed location of the Point of Compliance. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.

10. Based on Findings of Fact 10-23 and Exhibit 1 (attached), with respect to the Point of Compliance, NMED has duly considered all public comments received during the public comment period, has specified which provisions of the revised Draft Permit have been changed and has provided reasons for these changes in accordance with 20 NMAC §§4.1.901A.7 and 901.A.9.

11. Based on Findings of Fact 10-23 and Exhibit 1 (attached), no Party or Commentor has met their burden in challenging NMED’s proposed final HWA Permit condition regarding the Point of Compliance by presenting substantial evidence that this condition is unreasonable or inconsistent with the Hazardous Waste Act. See 20 NMAC 4.1.901.E.6 and 20 NMAC 1.4.401.A.
D. MODULE VII

1. CORRECTIVE ACTION

   A. FINDINGS OF FACT

1. In Module VII of the revised and final HWA permit, NMED determined to impose conditions for the implementation of Corrective Action for Solid Waste Management Units (SWMUs) at WIPP.

2. The Resource Conservation and Recovery Act (RCRA) requires permits issued after 1984 to contain corrective action requirements for releases of hazardous wastes or constituents from a SWMU, regardless when the waste was placed in the SWMU, as necessary to protect human health and the environment. RCRA Sections 3004(u) and 3004(v), as amended by Public Law 98-616 (November 8, 1984).

3. The HWA requires that all permits issued on or after April 8, 1987 shall contain corrective action requirements for releases of hazardous wastes or constituents from a SWMU, regardless of when the waste was placed in the SWMU as necessary to protect human health and the environment. NMSA 1978, §§ 74-4-4.A.5h and 74-4-4.2.B (Repl. Pamp. 1993).

4. Section 74-4-4.A.5.i of the HWA and 20 NMAC 4.1.500 (incorporating 40 CFR §264.101(c)) require corrective action beyond the facility boundary where necessary to protect human health and the environment, unless the facility owner or operator
demonstrates to the NMED Secretary's satisfaction that, despite the owner's or operator's best efforts, the owner or operator could not obtain permission to undertake such action.

5. NMED's Module VII is based on the EPA Region 6 Model Hazardous and Solid Waste Amendments (HSWA) Permit. RP, NMED's Exhibit A (Corrective Action) pg. 1.

6. NMED interprets the term "releases of hazardous waste or constituents" as used the HWA and regulations to mean "any spilling leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." This definition is identical to USEPA's definition of the term. See 50 FR 28713 (July 15, 1985). Further, in the 1990 proposal, the EPA added the following language to the definition: "... including abandonment or discarding of barrels, containers and other closed receptacles containing hazardous waste or hazardous constituents". 55 FR 30874. RP, NMED's Exhibit A (Corrective Action) pg. 4.

7. NMED incorporated the regulatory definition of "release" and the additional language from the 1990 proposal into the revised draft and final HWA permit. Id.

8. NMED considers a release of hazardous waste or constituents to have occurred if: (1) a hazardous waste or a waste containing hazardous constituents was managed directly on or within the ground surface at a SWMU (e.g., an unlined landfill or surface impoundment); (2) it is known that a release of hazardous constituents from a SWMU or AOC came into
contact with any environmental medium (e.g., a leak or spill from a SWMU or AOC contacted soil, surface water, or ground water outside the unit); or (3) chemical analyses of samples of any environmental medium (e.g., soil, surface water, ground water, or air), collected within, adjacent to, or down gradient from a SWMU or AOC detect organic hazardous constituents above the method detection limit, or detect inorganic hazardous constituents above background concentrations. Id.

9. NMED interprets the term "hazardous constituents" to be significant, because it indicates that the corrective action program was intended to extend to hazardous constituents regardless whether they satisfy the definition of "hazardous waste" or were derived from "hazardous waste". Under this interpretation, the corrective action program applies to hazardous constituents derived from nonhazardous solid waste. Id.

10. NMED defined the "hazardous constituents" under the revised and final HWA permit as any constituent identified in 20 NMAC 4.1.200 (incorporating 40 CFR §261 Appendix VIII), any constituent identified in 20 NMAC 4.1.500 (incorporating 40 CFR §264 Appendix IX), any constituent identified in a hazardous waste listed in 20 NMAC 4.1.200 (incorporating 40 CFR §261 Subpart D), or any constituent identified in a toxicity characteristic waste in 20 NMAC 4.1.200 (incorporating 40 CFR §261.24, Table 1). RP, NMED's Exhibit A (Corrective Action) at pp 3 - 4.
11. Under the final HWA permit, the corrective action process involves five (5) elements which are consistent with USEPA guidance and proposed regulations: (1) RCRA Facility Assessment (RFA); (2) RCRA Facility Investigation (RFI); (3) Interim/Stabilization Measures; (4) Corrective Measures Study (CMS); and (5) Corrective Measures Implementation (CMI). The ANPR discussed a sixth element, a Release Assessment (RA), which typically occurs between the RFA and RFI. RP, NMED's Exhibit A (Corrective Action) at pg. 9.

12. The RCRA Facility Assessment (RFA) is a mandatory requirement of the RCRA corrective action program. During a RFA, NMED compiles existing information on environmental conditions at the facility, including information to identify SWMUs and Areas of Concern (AOCs), document releases and potential releases of hazardous waste or hazardous constituents from the SWMUs and AOCs, and determine potential pathways and receptors. This information is used to develop the initial site conceptual model and to identify SWMUs and AOCs requiring corrective action in the RCRA permit. Id.

13. NMED is responsible for developing a RFA is a report describing the SWMUs and AOCs at WIPP. The RFA Report also may include conclusions regarding the need for further actions at each unit based on the potential occurrence of a release. The conclusions regarding the need for further actions may include "No Further Action" (NFA); confirmatory sampling, RFI, or interim/stabilization measures. Id. at pg. 10.
14. The basis for NMED’s conclusions regarding further actions for SWMUs or AOCs depends upon many factors such as: (1) historical or current evidence suggests the occurrence of a release, but for which there is no information regarding the presence of hazardous constituents; (2) the unit’s condition suggests the occurrence of a release, but for which there is no direct evidence (e.g., heavy staining on a concrete outdoor waste container storage pad without curbing); or (3) for which it is not possible to visually assess the occurrence of a release (e.g., underground industrial wastewater sewer lines or manholes). Id.

15. For SWMUs and AOCs in which hazardous constituents are not and were not managed or from which there was no release of hazardous constituents (e.g., units with adequate engineered release controls), NMED typically concludes that “no further action” (NFA) is needed. Id.

16. For SWMUs and AOCs with a documented release of hazardous constituents (e.g., visual observation during the RFA, file records, or records indicating direct contact of hazardous constituents with an environmental medium), NMED typically concludes that “further action” such as a RFI is needed. Id.

17. For SWMUs and AOCs for which it was clear, from the RFA, that a release had occurred which require immediate attention to prevent or mitigate a threat to human health and the environment (e.g., contamination of a drinking water supply exceeding MCLs), NMED
typically concludes that "further action" such as interim/stabilization measures are needed.

Id.

18. NMED uses the results of a RFA to identify and include SWMUs and AOCs requiring "further action" such as investigation or remediation in HWA permit issued under Sections 74-4-4.A.5.h and 74-4-4.2 of the HWA. RP, No. 5, "Assessment of Solid Waste Management Units at WIPP, Supporting Documentation for RFA." AR No. G.

19. In the permit application, Applicants identified twenty-eight (28) units as SWMUs. RP, No. 5, Permit Application, Appendix J1, AR No. X.

20. Based upon information contained in the Administrative Record, NMED prepared a technical support document (TSD) to "provide the rationale for the exclusion of SWMUs from and the inclusion of SWMUs and AOCs in Module VII of the WIPP draft and revised Draft permit." AR. No. "BD"

21. The HWA draft and revised draft permit identifies all SWMUs at WIPP that are subject to corrective action. The SWMUs are identified in Module VII. (Table 2); all units in which no RFI is necessary are set forth in Module VII (Table 2.a); and all units which are AOCs are set forth in Module VII (Table 3).

22. A SWMUs or AOCs in which NMED has determined need "no further action" (NFA) would not be identified in the HWA permit. See e.g. Technical Support Document (AR
In the revised Draft Permit, NMED proposed "further action" on fifteen (15) SWMUs and eight (8) AOCs. The fifteen (15) SWMUs consisted of thirteen drilling mud pits, one storage yard, and one evaporation pond. The eight (8) AOCs consisted of six drilling mud pits and two mine shafts sumps. In addition, five (5) TRU mixed waste management units were identified as SWMUs not requiring further action. RP, No. 5, revised Draft Permit Module VII (Tables 2, 2A and 3). AR No. BC.

The technical basis and justification for NMED's determination to propose "further action" or NFAs for SWMUs and AOCs in the revised Draft Permit, is set forth in the a TSD available for public review and comment. AR No. "BD" and AR. 980542 (Public Notice published May 15, 1998) and AR. No. 981134 (Public Notice published November 13, 1998).

The Applicants provided written public comment regarding NMED's determination in the TSD to require "further action" for several SWMUs and AOCs. See Applicants Comments Nos. 127, 176 and 276, RP, No. 5 (AR No. AX); RP, Nos. 15 and 36.

NMED has responded to these public comments. The technical basis and justification for NMED's determination is stated in the proposed TSD\(^1\) for the final HWA permit, which

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\(^1\) NMED's revisions to the TSD are denoted in redline and strikeout.
has been revised to reflect public comment, and is incorporated herein as Exhibit 2.

27. For the reasons set forth in NMED’s response to comments and the TSD, the Department has determined to make certain revisions to the final HWA permit as identified in the response to comments and incorporated herein. See NMED Exhibit 1 (Module VII) and Exhibit 2 (proposed TSD).

28. For the reasons set forth in NMED’s response to comments and the TSD, the Department determined to not incorporate certain revisions, including requests for “no further action” for certain units in the final HWA permit as requested by Applicants. See NMED Exhibit 1 (Module VII) and Exhibit 2 (proposed TSD).

B. CONCLUSIONS OF LAW

1. Based upon findings of fact 1 through 28, NMED’s determination to impose corrective action requirements in Module VII of the HWA permit is reasonable and in accordance with the HWA and regulations. NMSA 1978, §§ 74-4-4.A.5h and 74-4-4.2.B (Repl. Pamp. 1993).

2. Based upon findings 1 through 28, NMED’s determination to require “further action” for SWMUs or AOCs identified in the HWA permit was reasonable and in accordance with the HWA and regulations.
3. Based upon findings 1 through 28, NMED's determination to require "no further action" for SWMUs or AOCs previously identified in the revised draft permit was reasonable and in accordance with the HWA and regulations.