

A.T. Kearney, Inc.
One Tabor Center, Suite 950
1200 Seventeenth Street
Denver, Colorado 80202
303 572 6175
Facsimile 303 572 6181

Management
Consultants



ATKEARNEY

To Steve Zappe

Date 11/14/95

Company NMED

Fax Number _____

From Dave Walker

Number of Pages (Including this Page) 13

Telephone Number 303-572-6174

Charge Number _____

Confidentiality Notice Please call with Questions.

The information in this facsimile message is intended only for the personal and confidential use of the designated recipient(s) named above. If you are not the intended recipient of this facsimile or an agent responsible for delivering it to the recipient, note that any disclosure, copying, distribution or action taken on this information is not permitted. If you received this transmission in error, please notify the sender immediately.

SCANNED



MEMO

TO: Steve Zappe
FROM: Connie Walker
RE: Comment Revisions, Chapters D, E, and I
DATE: November 14, 1995

Attached are suggested revisions to Chapters D, E, and I comments, based upon the results of the meeting with DOE held on November 9, 1995. We felt that it might be more helpful if we provided the suggested revisions as definitive changes to the comments, and have used the WordPerfect 5.1 redline/strikeout feature to highlight suggested modifications. Should you need these modifications on disk, let us know and we will send them to you overnight (we are still working on the E-mail address). In addition to the redline/strikeout modifications, NMED may wish to consider a revision to Chapter D, General Comment 3.B to clarify whether the capacity of the secondary containment system in the Waste Handling Building will be based on 10% of the total volume of waste stored in each room of the Waste Handling Building, or 10% of the total volume of free liquids to be managed in the Waste Handling Building. NMED may also wish to consider deleting Chapter I, Specific Comment No. 23 concerning deed notation requirements.

Also, as we discussed, you might want to include the following in your cover letter to DOE:

- The applicant must provide the response to the information request at least two weeks prior to the intended issuance date for the NOD. This could mean requiring that the applicant provide this information by December 1 for Chapters A, B, C, D, E, and I, with all remaining Chapters due December 8, assuming that the NOD is to be issued the week of December 15.
- Indicate to the applicant that the NOD letter may not be a simple "subset" of issues from the information request letters. Additional NOD comments could be generated, based upon the applicant's responses to the information requests.
- Although it is understood that you wish to give the applicant leeway relative to the timing of permit application revision (i.e. no formal application revision at this time), it is suggested that the applicant be advised that permit application modification will be required to address all information request issues. Also, this approach would generate a second review round to ensure that the applicant has, indeed, addressed the issue appropriately.

Please give us a call if you have any questions or require additional information. If I am not available, please contact Dave Walker relative to issues pertaining to Chapters D, E, and I.

Chapter D General Comments

the permit application to describe the maximum number of each type of CH and RH TRU mixed waste containers, and the maximum volume of waste, that will be managed in each part of the WHB HWMU at any one time (including contingency storage requirements). Also provide a scale drawing that shows the maximum number of containers can be stored in the WHB while maintaining appropriate aisle space.

3. The permit application does not provide adequate information to demonstrate that all of the requirements of 20 NMAC 4.1, Subpart V, § 264 Subpart I, for the use and management of containers, will be met. As noted in comments concerning Chapter A, the WHB HWMU will be permitted as a container storage area rather than a miscellaneous unit. However, even if the WHB HWMU were to be permitted as a miscellaneous unit, the design and operation of the WHB would still have to meet the § 264 Subpart I requirements, since they are the most appropriate technical standards. Neither Section D-9a(3)(b) nor the referenced Appendix D3 drawings (41-F-087-014, 41-E-003-014, 41-E-005-14) provide adequate information to demonstrate that the WHB HWMU is equipped with a secondary containment system in accordance with 20 NMAC 4.1, Subpart V, § 264.175 (b)(2), (3), and (5). Revise the permit application to provide the following information:
 - A. Information which demonstrates that the various rooms and areas of the WHB that will be used to manage CH and RH waste (the CH Bay, overpack and repair room, CH overpack enclosure, conveyance loading room, RH Bay, cask unloading room, Hot Cell, canister transfer cell, and the facility cask loading room) will provide a containment system whose base (both the floor and containment trenches) is sloped or otherwise designed and operated to drain and remove liquids resulting from leaks or spills [20 NMAC 4.1, Subpart V, § 264.175(b)(2)]. Alternatively, demonstrate that the containers will be elevated or protected from contact with the spilled material.
 - B. Information (including plan and cross sectional drawings) which demonstrate that the containment system for all of the rooms and areas of the WHB that will manage CH and RH waste has sufficient capacity to contain 10% of the maximum volume of waste to be stored in a room, or the volume of the largest container, whichever is greater [20 NMAC 4.1, Subpart V, § 264.175 (b)(3)].
 - C. Information which demonstrates that spills or leaks will be removed from the sump or collection area of the secondary containment system in a timely manner to prevent overflow [20 NMAC 4.1, Subpart V, § 264.175 (b)(5)].
4. The permit application does not provide an adequate description of the procedures that will be used to determine whether releases of hazardous constituents have occurred from the waste containers in the WHB, the procedures that will be used to decontaminate containers, equipment and/or structures or the procedures that will be

used to demonstrate that decontamination is complete. The use of contamination surveys and possible decontamination of TRUPACT II's, road casks and railroad casks, waste containers, and canisters is discussed on pages D-14 (lines 35-43), D-15 (lines 6-11), D-17 (lines 3-7 and 16-24). However, the permit application does not provide detailed information concerning how ~~a release of hazardous constituents will be detected through visual means and/or during radiation surveys~~, contamination surveys and decontamination will be conducted, or an adequate reference to where the information is located within the permit application. Revise the permit application, or identify the appropriate reference, to provide the following information:

- ~~A. A general sampling plan that describes the types of samples, number of samples per unit area, and analytical parameters that will be determined during the initial contamination surveys of waste containers and canisters.~~
- A. A description of the criteria ~~(both visual and radioactivity levels)~~ that will be used to determine whether decontamination of a container, equipment, or structure will be required, and a detailed description of the procedures to be used to decontaminate containers equipment and structures.
- B. A general sampling plan that describes the types of ~~hazardous constituent~~ samples, number of ~~hazardous constituent~~ samples per unit area, and ~~hazardous constituent~~ analytical parameters that will be determined to demonstrate the effectiveness of decontamination and the criteria to be used to determine when the decontamination ~~hazardous constituent releases~~ is complete.
5. Neither Section D-9a(2)(b) (pages D-17 and D-18) nor Section D-9a(3)(b) of the permit application provide an adequate description of the configuration of the WHB RH Bay, as required by 20 NMAC 4.1, Subpart IX, § 270.14(b)(1) and (19). From Figure D-16 and Drawing No. 41-E-005-014, it appears that the Hot Cell is located above the cask unloading room and that the canister transfer room is below the floor level of the cask loading room. However, this is not completely clear from the text, figures or drawings included in the permit application. Revise the permit application to provide figures or drawings that show cross-sectional views of the RH side of the WHB. At a minimum, include both north-south oriented and east-west oriented cross-sections that show the entire RH Bay through both the cask unloading room and the facility cask loading room.
6. Neither Section D-9a(2)(b) or Section D-9a(3)(f) of the permit application provide an adequate description of the procedures to be used to emplace the CH and RH TRU mixed waste in the underground disposal rooms. In accordance with 20 NMAC 4.1, Subpart IX, § 270.23(a) and Subpart V, § 264.601, revise either or both sections of the permit application to provide the following information:

Chapter D General Comment 6

- A. The order and direction that disposal rooms and disposal room access drifts within a panel will be filled with RH waste canisters and CH waste containers.
- B. An estimate of the amount of time it will take to complete waste emplacement within a panel.
- C. The spacing between CH waste containers and the initial minimum spacing between the CH waste containers and the walls and roof of the disposal rooms and disposal room access drifts.
- D. A description of the amount of aisle space (if any) that will be maintained within the disposal rooms and/or disposal room access drifts after waste emplacement to allow for access to the emplaced waste containers and/or access to inspect, monitor and maintain the roof support system.
- E. The initial diameter of the boreholes used for disposal of RH waste canisters to demonstrate that the boreholes have adequate diameter to accommodate the overpack RH canister.
- F. The amount of air movement that will be allowed into disposal rooms and disposal room access drifts that are full of waste.
- G. A statement concerning whether backfill materials will be placed around the emplaced CH waste containers. If backfill materials will be used, provide a detailed description of the material to be used and the procedures and equipment to be used to place the backfill.
- H. Waste loading considerations relative to waste form groups.

~~A description of the circumstances under which the main repository access drifts will be used for disposal of RH mixed waste.~~

- 7. Sections D-9a (page D-5) and D-9a(2)(b) (page D-18) of the permit application state that a shield plug will be installed after an RH canister has been inserted into a borehole to provide radiation shielding. However, neither Section D-9a(2)(b) or Section D-9a(3)(f) provide an adequate description of the design of the shield plug, or of the anticipated performance of the shield plug in response to salt creep and brine inflow. In accordance with 20 NMAC 4.1, Subpart IX, § 270.23(a) and Subpart V, § 264.601, revise the permit application to provide the following information:
 - A. A description of the design of the shield plug, and the procedures that will be used to install the plug. Also include design drawings of the shield plug.

Chapter D General Comments

migration of constituents in groundwater and the subsurface environment and in surface water, or wetlands, or on the soil surface. Revise Sections D-9d(1) and D-9d(2) of the permit application to specifically address each of the § 264.601(a) and (b) requirements. Include a synopsis of the information required to meet each requirement, and specific references (including Appendix Number and/or Report title, and specific chapter or section where the information is located) to the location of the detailed information that demonstrate that each requirement has been thoroughly addressed. Relative to those performance standards pertinent to groundwater, ensure that each of the standards is addressed in sufficient and appropriate detail, taking into account comments on Chapters E, Appendix E1, and Appendix D6.

16. The information provided in Section D-9d(3) of the permit application does not adequately address each of the 20 NMAC 4.1, Subpart V, § 264.601(c)(1)-(7) requirements to demonstrate that the design and operation of the WIPP underground HWMUs will prevent releases that may have adverse effects on human health and the environment due to migration of waste constituents in the air. Revise Section D-9d(3) and the appropriate tables and appendices to address the following issues:

- A. The permit application does not provide an adequate description of the physical and chemical characteristics of the waste managed in the WIPP, as required by § 264.601(c)(1). The discussion of the potential for health risks on page D-41 (lines 11-16) and Table D-3 indicates that the health risks to WIPP workers and the public have been calculated based on emission of VOC headspace gases from waste containers. However, the permit application does not describe or properly reference the source of the headspace gas emission data. Revise the text of the permit application and Table D-3 to appropriately reference Appendix C2 as the source of the weighted average drum headspace concentrations that have been used to calculate the air emissions exposure risk.

In addition, Appendix C2 indicates that the weighted average concentrations of headspace gases provided in Table C2-1 and Table D-3 were calculated based on analyses from only 700 containers from only two generator sites. Revise the permit application to provide a discussion of the appropriateness of calculating the health and environmental risks due to air emissions from the WIPP based on headspace gas data from only 700 containers from only two generator sites, rather than representative samples of the spectrum of wastes from all of the potential generator sites.

- B. The permit application does not provide an adequate description of the effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to air, as required by § 264.601(c)(2). The discussion of the potential for health risks due to release of hazardous constituents to the air on page D-41 (lines 11-31) indicates that the health risks to WIPP workers and the hypothetical member of the public residing at the

unit boundary have been projected based on the emission of VOC headspace gases via diffusion through the HEPA grade filters (i.e., the health risk calculations have been based on the assumption that the CH and RH TRU mixed waste containers will remain intact). The text further states that the greatest potential exposure to a member of the public would occur when the last panel is open and being filled and when minute emissions contributions from all closed panels (via design basis diffusion rates) through the closure system are occurring. ~~The calculations of the emission contributions from the closed panels also appear to have been based on the drums remaining intact.~~ Since it is not likely that waste containers within a closed panel will remain intact throughout the entire Disposal Phase due to potential roof failures and the effects of salt creep, revise the permit application to discuss the appropriateness of basing the concentrations of VOCs in air emissions from closed panels on the assumption that the containers will remain intact. Revise the calculations of health and environmental risks from the air emissions accordingly.

In addition, the permit application does not provide adequate or consistent information concerning how the emissions contributions from the closed disposal panels were calculated. Page D-41 (lines 25-26) indicates that the minute emissions contributions from all closed panels are calculated by factoring in the design basis diffusion rates, which is assumed to mean diffusion through the panel seals. However, review of the calculations provided in Appendix D9, Table D9-3, indicates that it does not appear that diffusion through the panel seals has been included in the calculation of single closed panel emissions. Revise the text of the permit application and Appendix D9 to clearly state whether the calculation of emissions from closed panels has included a factor for diffusion through the panel seals. In addition, provide a complete description of the design basis diffusion rate for the panel seals and how the rate was calculated.

- C. The permit application does not provide an adequate description of the operating characteristics of the unit which impact VOC distribution, as required by § 264.601(c)(3). The calculations of potential health and environmental risks resulting from exposure to air emissions from the WIPP facility have been based on weighted average drum headspace concentrations of VOCs. As a result, it will be very important to control the placement of containers within a disposal panel to ensure that the mix of waste placed in a panel is similar to the mix of waste used to calculate the average headspace concentrations. Revise the permit application to describe the procedural controls that will be used to ensure that the volume and concentration of VOC containing waste placed in a particular disposal panel is similar to composition of the waste used to calculate the average headspace concentrations of VOCs (i.e., waste loading considerations).

- D. The permit application does not provide adequate information to demonstrate that the calculations performed to assess the potential for health risks caused by human exposure to waste constituents have been properly conducted, as required by § 264.601(c)(6). Page D-40 (lines 41-42) indicates that the risk to the nearest resident is based on calculations dictated by DOE Orders and is documented in the Final Safety and Analysis Report. Table D-3 indicates that the Public Exposure Health-Based Levels are based on risk assessment information explained in the WIPP No-Migration Variance Petition. Revise the permit application to provide complete copies of all of the risk assessment assumptions and calculations used to assess the potential for health risks resulting from exposure to air emissions from the WIPP facility as an attachment or appendix to the permit application. Also provide a justification for conducting risk assessment calculations for only nine VOCs, when Appendix C2, Table C2-1 indicates that 32 volatile organic constituents were detected during the headspace gas analysis of the 700 drums. J
- E. The permit application provides an assessment of the potential health risks due to exposure to air emissions from waste in the underground repository for WIPP workers in an open panel underground and for a member of the public residing at the Land Withdrawal Act boundary. However, the permit application does not provide an assessment of the potential health risks due to exposure to air emissions to WIPP support personnel who work above ground (but are not directly involved in waste management activities) during the closure and post-closure time period. It is presumed that the exposure concentration for these personnel will be higher than the exposure concentrations to the general public at the Land Withdrawal Act Boundary, but that these personnel may not be directly covered under OSHA occupational exposure requirements. Revise the permit application to provide an assessment of the potential health risks to WIPP support personnel working in the surface facilities during the operational, closure, and post-closure care periods.
- F. The permit application does not provide an assessment of the potential for damage to domestic animals, wildlife, crops, and vegetation caused by exposure to waste constituents in the air emissions from the WIPP. In accordance with § 264.601(c)(7), revise Section D-9d(3) to specifically address this requirement. J
17. The permit application does not provide an adequate description of the air dispersion model and modeling utilized to estimate the VOC concentrations at the unit boundary. Further, the permit application does not provide adequate information relating to the required input parameter data sets. Tables D-3 and D9-3 (Appendix D9), which calculate the maximum public exposure concentrations, are based upon the use of an air dispersion factor (ADF), which is a calculated output from the air dispersion

modeling. However, the text does not address air dispersion modeling. Revise the permit application to provide the following information:

- A. A description of the air dispersion model chosen for the WIPP site.
- B. A detailed description of the specific input model parameters necessary for the dispersion modeling, including the control data sets, the source data set, the receptor data set and the meteorological data set.
- C. A detailed analysis and justification of all assumptions made for the modeling.
- D. A summary of the modeling results.

Note that while the permit application does not provide the air dispersion modeling used in estimating VOC concentrations at the facility, it appears that the required information may be within the No Migration Variance Petition since it discusses the air dispersion model ISC2 in Chapter 5 (Environmental Impact Analysis). As of September of this year, EPA mandated the model ISC3 as the legal air dispersion model to be used in risk assessment. ISC3 is the refined version of the 1994 model ISCST2-DFT. Ensure that the discussion of air dispersion modeling provided in the permit application explains if ISC2 was chosen as the preferred model because at the time ISCST2-DFT was still in draft form and ISC2 was the "latest" EPA approved model at the time the NMVP was written and states whether the permit application will be revised using the ISC3 model. ~~The Guideline Series on Air Quality Models lists these models approved by the U.S. EPA under the Clean Air Act. Supplement C of this series approves the ISC3 model for use.~~

18. The permit application provides assessments of the potential for health risks due to exposure to air emissions from the WHB for both WIPP Workers and a member of the public residing at the Land Withdrawal Act boundary. However, the since the WHB will be permitted as a container storage area, the miscellaneous unit environmental performance standards for air emissions will not apply to the WHB. Revise the permit application to remove information concerning the assessment of potential for risk due to air emissions from the WHB.
19. The permit application does not specifically address 20 NMAC 4.1, Subpart V, § 264.603 requirement that the environmental performance standards required under § 264.601 must also be met during the post-closure care period. Revise Section D-9d of the permit application to provide information that demonstrates that the environmental performance standards will also be met during the post-closure care period. Specifically, the permit application must reference in Section D-9d where

Chapter D Specific Comments

6. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(2)(b), TRU Mixed Waste Management Operations, Page D-14, Lines 1-10.**

The permit application states that derived waste will be considered acceptable for management at the WIPP facility, because any TRU mixed waste shipped to the facility will have already been determined to be acceptable and because no new constituents will be added. However, the permit application does not identify the types of solvents or decontamination materials that will be used during decontamination activities to demonstrate that no new constituents will be added. Revise the permit application to identify all of the potential cleaning solvents that will be used to decontaminate equipment and cleanup spills. Also identify the specific hazardous constituents present in each of the cleaning solvents. (Also refer to Chapter C comments pertaining to use of these solvents).

7. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(2)(b), TRU Mixed Waste Management Operations, CH TRU Mixed Waste Handling, Page D-15, Lines 6-11.**

The permit application states that all contamination surveys at the WIPP facility are based on the concept of co-detection. Due to the heterogeneity of the waste managed at the WIPP there may be instances when a release of hazardous constituents occurs without a concurrent release of radioactive waste. As a result, the use of only the co-detection principle to determine whether a release of hazardous waste or hazardous constituents has occurred from a container, ~~or to verify spill cleanup~~, may be inadequate. Revise the permit application to state that all surface sampling radiation surveys conducted at WIPP to verify spill cleanup, or determine whether a release has occurred, will be confirmed by collecting samples for hazardous constituent analysis. Alternatively, revise the permit application to include a complete and comprehensive justification for this approach.

8. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(2)(b), TRU Mixed Waste Management Operations, CH TRU Mixed Waste Handling, Page D-16, Lines 29-30.**

The permit application does not identify the location within the repository that the underground forklifts will remove the waste containers from the facility pallet. In accordance with 20 NMAC 4.1, Subpart V, § 264.601, revise the permit application to provide this information.

Chap D Specific Comments

9. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(2)(b), TRU Mixed Waste Management Operations, CH TRU Mixed Waste Handling, Page D-16, Lines 34-35.**

There is a typographical error on line 35 in an important reference. Revise the permit application to indicate that Section D-9a(3)(f) provides the further discussion of the repository container management rather than Section D-9a(3)(g).

10. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(3), Facility Design and Construction, page D-19, Line 15.**

The footnote to the sentence on this line refers the reader to Appendix D3, Drawing 54-W-009-W presumably for additional information concerning the ground control program. However, a review of the referenced drawing indicates that the drawing does not contain any information about the ground control program. Revise the permit application to remove the reference to the drawing, reference the appropriate drawing, or to clarify why the drawing was referenced.

11. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(3)(e), Shafts and Subsurface Facilities, page D-32, Lines 8-11.**

The permit application indicates that the shafts (with the exception of the salt handling shaft) are equipped with three water collection rings to collect any water that may seep into the shaft through the shaft liner. However, the permit application does not provide a discussion of the disposition of the water once it has been collected. Revise the permit application to describe how any water that is collected in the collection rings is managed and disposed to prevent run-on to the underground HWMUs. Alternatively, reference where in the permit application this information is presented.

12. **Chapter D, Section D-9, Miscellaneous Unit, Section D-9a(3)(f), Subsurface Structures, Underground Ventilation Modes of Operation, page D-35, Lines 25-32.**

The permit application indicates that the filtration mode is activated manually or automatically if the radiation monitoring system detects abnormally high concentrations of airborne radioactive particulates, or if an alarm is received from one continuous air monitor at Station A. According to the co-detection concept proposed by DOE, if releases of radioactive particulates or radiation occur, it means that releases of hazardous constituents has also occurred. Since the HEPA filters are not designed to remove volatile organic hazardous constituents from the exhaust air, the released hazardous constituents may be released directly to the environment. Revise this Section of the permit application, and Section D-9e(1), Volatile Organic Compound Monitoring (page D-49) to state that in addition to the routine VOC air monitoring program (General Comment No. 19), the exhaust air from the Exhaust

Appendix D9 Comments

Further, the weighted average drum headspace concentration for toluene was reported as 16.69 ppmv in Table VOC-2 and as 18.89 ppmv in Table D9-1. Upon application of the above formula, it appears as if the values reported in Table VOC-2 are correct.

There appear to be major discrepancies between the permit application and the NMVP. In particular, Appendix VOC provides the methodology used in performing the screening analysis to determine the VOCs to be selected for the risk analysis. However, the methodology appears to be unsubstantiated, particularly if this logic is to be applied to the Part B permit application. For example, several chemicals were screened out on the basis that the chemical was either site specific or not listed as both an Appendix VIII and as a QAPP identified chemical. Since the WIPP permit application appears to rely on the NMVP for the determination of the selected VOCs, the screening methodology should be carefully evaluated in order to demonstrate compliance with the § 264.601 environmental performance standards.

3. **Chapter D, Appendix D9, Table D9-3, Maximum Public Exposure Concentration at the LWB From Underground Waste Emissions, Pages D9-3 and D9-4.**

The 35-year health-based limits for the selected VOCs are listed in column 4 of Table D9-3. However, the source of these values is not referenced. Revise the permit application to include all appropriate references for the determination of the 35-year health-based limits as presented in Table D9-3. Also, provide the equations and methodologies used in these references ~~and a justification for using a 35-year health-based limit instead of calculating risk based on the U.S. EPA recommended 70-year health risk based limits.~~

The No Migration Variance Petition, Chapter 5 (Environmental Impact Analysis) appears to be the reference for the health-based limits. However, the methodologies for determining the health-based limits as discussed in Chapter 5 of the NMVP contain several discrepancies that should be addressed prior to submittal within the permit application.

For example, the formula used to calculate the health-based limits for carcinogens contains an absorption factor in the denominator of the equation. However, an absorption factor is applied to determining limits in relation to soil ingestion and dermal exposure, not to direct inhalation scenarios. Also, when calculating a health-based limit due to inhalation, an exposure time is factored into the equation, which was not included.

Further, in calculating the health-based levels for noncarcinogens, exposure time, exposure frequency and exposure duration terms were added unnecessarily to the equation. (Although these terms were set so that they cancelled each other out.) The hazard quotient, which should be revised to be the hazard index, was assumed to be one ~~(which is correct, since a single exposure pathway was considered).~~ Although

APP D9 Comments

EPA has in the past said a hazard index with a value of one or less is assumed to mean no significant adverse health effects would be expected, recent EPA guidance has stated that an assumption that 75% of the hazard index is reserved for exposure to background constituents, and therefore a hazard index of 0.25 should be the ceiling value. DOE should consider this when conducting risk assessment calculations for noncarcinogens.

4. Chapter D, Appendix D9, Calculation Briefs for Environmental Performance Standards, Table D9-3.

Appendix D9, Table D9-3 provides the maximum public exposure concentration at the Land Withdrawal Act Boundary from underground waste emissions of various constituents. Revise the permit application to address the following concerns that were noted relative to the information provided in the Table, pertinent to the example calculations that were used to obtain the exposure concentrations:

- A. Column 9 of Table D9-3 contains the calculated excess cancer risk to the public. The related footnote states that this is based upon EPA Risk Assessment/Guidance for Superfund Sites and RCRA Proposed Subpart S methodology, as explained in the WIPP No-Migration Variance Petition (NMVP). However, the NMVP does not explain the excess risk calculation. Although EPA guidance for risk assessment does provide methods for determining excess risk, these methodologies do not coincide with the formula presented on page D9-4 of the permit application. Revise the permit application to discuss on what the formula for excess risk was based on to include proper references for this calculation. Also include discussion on parameters assumptions.
- ~~B. The calculation for the single closed panel emissions does not appear to include a source term such as the average drum emission rate. It is not clear whether this is a typographical error, or whether the constituent emission rate has been factored into the equation in some other manner. Revise the permit application to clearly state how the source term has been incorporated into single closed panel emissions calculation. If the lack of a source term in the example calculation on Table D9-3 is a simple typographical error, then revise the example calculation to show the source term component. If the source term component has been factored into the equation in some other manner, then revise the example calculation to clearly show how the source term has been incorporated. If an error has been made in the emissions calculations by not including a source term component, then revise all of the emissions calculations to obtain the correct emissions rates.~~
- B. The calculation for the single closed panel emissions includes an average gas generation rate, and an equivalent gas generation rate due to panel volumetric reduction (creep). However, the permit application does not describe why the