

MEMO

TO: Steve Zappe and Barbara Hoditschek

FROM: Connie Walker

RE: Working Draft; potential technical issues, Chapters B, D, E, and I

DATE: September 29, 1995

Attached is our working draft memo outlining major (and some minor) technical issues noted during our brief examination of Chapters B, E, D, and I. This memo is to be considered a rough draft, and additional commentary (including major technical issue identification) could arise as a result of the detailed review. Additionally, these topics are meant to represent those issues that we believe could be problematic; detailed review of the Chapter could indicate that some of these are "non-issues". When statements such as "additional investigation" are used in the rough working draft, this is meant to imply that A.T.Kearney would like to examine the issues more thoroughly, but DOE could, ultimately, be required to provide additional clarification.



9/29/95
ROUGH WORKING DRAFT
FOR INTERNAL REVIEW ONLY

General Issues and Concerns
Chapters B, D, E, and I
WIPP Part B Permit Application

GENERAL COMMENTS

1. DOE has proposed the LWA act-defined four square mile facility boundary as the point of compliance for evaluating contaminant migration in both groundwater and air. The point of compliance proposed by DOE will be evaluated, through the course of our review, to determine whether this location is adequate.
2. Chapters often reference other chapters for information, but cursory review of the referenced chapters show that the information is either not present or lacking. NMED should be made aware that as a result of this, additional issues could be identified through the detailed review process, as references are further evaluated.
3. Chapter D includes no reference list, although references are cited within the Chapter. Other chapters, such as E, include information that is not referenced. Based upon our earlier experience with DOE regarding references, the lack of references could be due to our previous requests that the permit application be relatively "stand alone". However, checking of unreferenced (or even referenced) background material could be time consuming, and in many cases unnecessary. (It should be noted that while much of the information is unreferenced, our understanding of the facility has shown the information to be true, based on our experience). NMED should determine whether this approach is adequate.

CHAPTER-SPECIFIC COMMENTS

Chapter B

1. The following issues were evident upon cursory examination of Chapter B, and will be examined more thoroughly during the detailed review. Note that all of these issues arise because of new information associated with the disposal aspects of the WIPP:

- The number of generators identified by DOE has changed since our evaluation of the Test Phase permit application, Rev.3, and Chapter B should list these generators.
- Chapter B typically includes a description of wastes to be shipped to WIPP; additional detail and clarification in this regard is required (e.g. addition of the new

*especially
small gen +
WC capability*

summary waste categories identified in Chapter C; these waste categories, and associated waste streams, profiles, etc. are different from that presented in the previous Test Phase permit applications).

- Description of containers (SWBs, drums, overpacks) to be managed in WIPP should be included, as well as a brief discussion of waste management practices, waste volumes, waste transfer procedures, and waste stacking procedures.
- Language regarding HWMUs to be permitted is inconsistent, and should be clarified.
- Underground transportation may not be adequately addressed in Chapter B. ✓
- A summary discussion of the risk assessment results presented in Chapter D should be included in Chapter B, but is not. ✓
- Activities to be performed within the WHB are not adequately discussed (typically, summary discussions of these are included in Chapter B); note that these practices are different than that proposed for the Test Phase, particularly for RH waste. ?

Chapter D

1. The Chapter D text and appendices include detailed design information for hoists and cranes that will be used to move waste containers within the Waste Handling Building (WHB) and from the WHB to the underground repository. An evaluation of the adequacy of the detail design information for this type of equipment would not typically be conducted as part of a RCRA permit application review and A.T. Kearney did not conduct a detailed evaluation of this design information during our reviews of versions 1 through 3 of the WIPP Part B Permit Application (Note that new hoists and cranes have been added to this version of the application with the inclusion of the Remote Handled Waste Area in the WHB). At a typical RCRA Treatment, Storage, and Disposal (TSD) facility, the adequacy of the design of this equipment would be covered under the certification of designs by a registered professional engineer. The technical evaluation of this equipment conducted during a typical permit application review would include a comparison of the stated capacity ratings of the hoists and cranes to the anticipated maximum weight load for each type of waste container to be handled. A.T. Kearney requests NMED's concurrence that the permit application review will not include a detailed review of the design of the Contact Handled (CH) and Remote Handled (RH) waste container conveyance equipment such as hoists, cranes, forklifts, facility pallets and other similar equipment. This question also applies to the detailed design of the major systems at the Waste Handling Building (i.e., the Heating, Ventilation, and Air Conditioning (HVAC) system and the fire protection system) and the underground repository (i.e. the underground facilities ventilation system, and Exhaust Filter Building). Our proposed general approach for evaluating these types of support equipment is to perform a

clarify?
do it.

conceptual design review, assuming that the equipment and systems have been appropriately designed and constructed so that they will perform as stated in the application.

2. The information provided in Chapter D regarding the design, operation and maintenance of the underground repository indicates that there is some overlap of authority between State of New Mexico and U.S. Government Agencies such as the Mine Safety and Health Administration (MSHA) and the U.S. Bureau of Mines. A.T. Kearney did not conduct a detailed evaluation of the general mine design and safety information during our reviews of versions 1 through 3 of the WIPP Part B Permit Application since MSHA and the Bureau of Mines was (and will continue to) evaluating the overall operation and safety of the underground repository. A.T. Kearney requests NMED's concurrence that the permit application review will not include a detailed review of the proposed design, operation and maintenance of the roof and walls of the main repository access drifts, as well as the adequacy of the volume of fresh air supply to various parts of the repository. We will, however, examine gas generation issues that could impact repository performance. *permit con*

Note that since the proposed roof support program (rock bolting) for the new rooms and panels to be mined in the repository will not include the supplementary roof support system that was installed in Panel 1, Room 1 of the repository, A.T. Kearney does intend to evaluate the adequacy of the geomechanical monitoring system and the ground control program for the individual disposal rooms and panel accessways that will be used for waste disposal. Evaluation of the proposed ground control system is important since the failure of the roof in a waste disposal room while disposal operations were still in progress in that room or another room in the same panel would likely result in damage to the waste containers and a release of hazardous constituents to the environment.

3. In order to determine whether or not the design and operation of the WHB will have to meet the 20 NMAC 4.1, Subpart V, §264.175 requirements for the provision of secondary containment for the management wastes containing free liquids in containers, A.T. Kearney requests input from NMED concerning whether or not the waste to be managed at the WIPP will be considered to contain free liquids. The WIPP Waste Acceptance Criteria (WAC) specifies that waste managed in containers at the WIPP will contain no free liquids, and that the amount of residual liquid in a container is restricted to less than one percent of the volume of a container. Although the residual liquid in the WIPP waste containers may meet the 20 NMAC 4.1, Subpart I, §260.10 definition of free liquid, NMED may wish to consider whether the WIPP WAC restriction of free liquids can be considered the regulatory and functional equivalent of managing containers holding only wastes that do not contain free liquids. If NMED determines that the WIPP WAC restriction of free liquids will satisfy the 20 NMAC 4.1, Subpart V, §264.175(c) for a container storage area that does not manage free liquids, the WHB will not have to be equipped with a containment system that meets the requirements of 20 NMAC 4.1, Subpart V, §264.175(b).

The management of wastes containing free liquids in the WHB is of concern because the existing WHB will not meet all of the container storage area secondary containment

4

What procedures for reviewing manifest verifying each drum for, looking for free liquids

How do they confirm Waste Char other than accept Generator's word

When is waste considered "received" - when it crosses "unit boundary", or upon receipt

requirements. For example, the edges of the coated concrete floor of the building are not equipped with containment berms. In addition, the floor of the WHB is flat so that spilled liquids would not flow to the fire water collection trench that is located along the north wall of the Contact Handled (CH) Bay. During review of versions 1 through 3 of the WIPP Part B Permit Application, the waste managed and stored in the WHB was assumed to contain free liquids, but only minute amounts. The lack of containment berms and a sloping floor was addressed by limiting storage of waste in containers to the northern half of the CH Bay under the assumption that the small volume of liquids available to spill or leak to the floor would not spread to the outer southern wall of the WHB before the spill or leak could be detected and cleaned-up.

Make DOE comply with WAC limitation for free liquids

It should be noted that the description of the design of the WHB provided in Chapter D, Subsection D-9a(3)(b) does not provide any information concerning WHB secondary containment. Chapter D does not even provide a statement concerning whether DOE feels that the WHB will be required to provide secondary containment for the containers managed in the building.

4. The Introduction to Chapter D on page D-1 (lines 21-30) states that "Certain technical data, such as design drawings and specifications and engineering studies for newly designed facility features (e.g., Panel 2 design) will be certified by a registered professional engineer (in accordance with 20 NMAC 4.1, Subpart X, § 270.14[a]). Other drawings provided in this permit application are "as-built" drawings. "As-built" drawings are not design drawings and specifications, or engineering studies and therefore are not subject to the requirements of 20 NMAC 4.1, Subpart X, § 270.14(a)." The issue of certification of design drawings was evaluated by NMED during the review of the versions 1 through 3 of the WIPP Part B Permit Application. A.T. Kearney requests that NMED evaluate the statement in the application and determine whether it is consistent with NMED policy.

5. Chapter D, Subsection D-9a, page D-3 (lines 30-32) and page D-4 (lines 1-2) states that "The point of compliance for air emissions from the underground HWMUs (i.e., the point where any releases to the environment would occur) is the facility boundary defined in the Land Withdrawal Act of 1992 (LWA) (Public Law 102-579), which is the nearest location any member of the public could reside." During the review of the environmental performance standard information provided in Chapter D of the application, A.T. Kearney will evaluate the appropriateness of the proposed point of compliance (POC), defined by DOE as the facility boundary as identified in the LWA. We will then provide the results of our evaluation so that NMED can establish the actual location of the point of compliance.

share EPA discussion

6. Section D-9d, pages D-38 through D-42, is supposed to provide the information to demonstrate that the WIPP miscellaneous unit(s) will meet the environmental performance standards of 20 NMAC 4.1, Subpart V, §264.601. A.T. Kearney will conduct a detailed review of the information submitted in the application to ensure that DOE has demonstrated through the appropriate use of risk assessment, or modeling, that the WIPP miscellaneous unit(s) will meet the §264.601 environmental performance standards during operation and the

§264.603 requirements during the closure and post-closure time periods. Our evaluation will include assessing the adequacy and accuracy of the input parameters, assumptions and equations used in the models and risk assessments, and the actual risk calculations. ✓

7. Both Chapter D (page D-15, lines 6-11) and Chapter I, Section I-1e(2) (page I-9, lines 16-22) and Appendix I3, discuss the use of the principle of co-detection when conducting contamination surveys, health and safety surveys, and surveys to demonstrate effectiveness of decontamination during operation and closure of the WIPP. DOE has recently added a qualifier to the co-detection principle, as shown on page D-15 (lines 6-11) and Appendix I3, Section I3-4, that clarifies that the use of co-detection applies only to sampling or monitoring for nonvolatile (non-gaseous) releases. The application indicates that co-detection does not apply to detecting releases of gaseous volatile organic compounds from TRU mixed waste containers. A.T. Kearney requests that NMED evaluate the proposed use of the co-detection principle for determining whether nonvolatile hazardous constituents are present to determine if it is consistent with the NMED policy concerning the use of co-detection.

need recommendation

Chapter E

1. DOE provides no groundwater monitoring program because it believes that groundwater monitoring is not required to ensure the protection of human health and the environment. However, language in Chapter is not consistent relative to whether groundwater monitoring will be conducted, and the Chapter and associated appendices appear, upon first glance, to be very undetailed. A.T. Kearney review of information provided in the permit application is required to evaluate whether DOE has adequately demonstrated that miscellaneous unit performance standards are met and, hence, groundwater monitoring is not required.

How to be consistent w/ EPA 194

Chapter I

1. Chapter I, page I-3, of the application acknowledges that the post-closure care period will continue for as long as NMED determines it is necessary. As part of the review of Chapters D and I, A.T. Kearney will evaluate whether the standard 30 year post-closure care period is appropriate for the WIPP by looking at how the potential for the release of hazardous constituents from the repository to air or groundwater changes with time after closure of the unit. A.T. Kearney would like to know whether NMED has made any initial determinations concerning how long the WIPP post-closure care period will continue. *Ask Bem to - assume 30 yrs*

2. The description of the Panel Closure (Partial Facility Closure) provided in Chapter I-1e(1) (page I-7) indicates that a panel closure system will be emplaced in the panel access drifts during partial closure of the repository. The purpose of the panel closure system is to minimize further movement of gases and solids out of the HWMU (panel). The application defers to Appendix I1 as the location of detailed panel closure system design information. A brief review of the report provided in Appendix I1 indicates that the panel closure system

design presented in the report is a conceptual design only, rather than a detailed final design that includes material and construction specifications and design drawings that would be required to actually construct the panel seal system.

Since there are no "minimum technology standards" for the panel closure system (like there are for RCRA Final Covers) that can be deferred to within the Part B application and Part B permit, an information request for detailed panel closure system design drawings, engineering reports, and specifications [as required by 20 NMAC 4.1, Subpart IX, §270.23(a)(2)] may be in order. Since it does not appear that detailed design information is readily available to DOE at this time, this may lead to significant delay in issuance of the WIPP Disposal Phase Permit if DOE cannot prepare the required information in an expedited fashion. As stated in the attached (Attachment 1) EPA Memorandum concerning compliance schedules, taken from the RCRA Policy Compendium [document 9524.1984(01)], submittal of information which is required to be in the permit application at some later date (after permit issuance) would be contrary to U.S. EPA policy. It should be noted that Chapter I of the Permit Application does not discuss a timeframe for completing the design of the panel closure system, nor does the Chapter commit DOE to submitting a final panel closure system design to NMED for approval at a later date.

A.T. Kearney requests input from NMED concerning the level of detail of the design and constructability of the panel seal system that will be considered adequate for the purpose of approval the WIPP Part B permit application and preparation of the WIPP Part B permit.

3. The description of Decontamination and Decommissioning activities provided in Chapter I-1e(2) (pages I-7, I-8 and I-12) indicates that at the time of final closure of the WIPP, repository shaft seals will be emplaced in each of the WIPP shafts to prevent water from entering the repository and to prevent gases or brines from migrating out of the repository. The application defers to Appendix I2 as the location of the shaft seal design basis and performance evaluations. The March 17, 1995 document provided in Appendix I2 is actually a position paper describing the current design of the shaft seals and repository seals program activities and experiments that are planned or underway to finalize the design. However, the document does not provide a final or near final design for the repository shaft seals. As noted in the previous comment, a compliance schedule which would allow submittal of seal design details at some future date would be contrary to U.S. EPA policy, and could make the WIPP permit vulnerable to challenge in court. A recent EPA letter to DOE (Attachment 2) regarding this same issue confirms our concern over provision of information on this "critical aspect" of the WIPP design.

A.T. Kearney requests input from NMED concerning the level of detail of the shaft seal design and constructability considerations that will be considered adequate for the purpose of approval the WIPP Part B permit application and preparation of the WIPP Part B permit.