

October 1, 2001

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Subject: Repository Design and Thermal-Mechanical Effects Key Technical Issue
Intermediate milestone No.20-01402.671.150: Letter Report

Dear Dr. Chowdhury:

We have reviewed the Center's Letter Report entitled: "Preliminary Report on Potential Military Facility-Initiated Hazards at Yucca Mountain Repository." The report presents a framework for developing a data base on potential hazards initiated at nearby military and industrial facilities and their current and proposed future activities. Such hazards would be considered in the preclosure safety analysis (PCSA) of the geologic repository operations area. The data base is still under refinement and should be thoroughly tested before it can be accepted as a final product. Before finalizing this data base, please consider the following:

- (1) Quality Assurance requirements for code/data base development should be met.
- (2) This data base should be part of the PCSA Tool which is under development and provide input to it. Also, this data base configuration should be revised, if needed, to be compatible with the PCSA Tool configuration.
- (3) Several reports containing environmental impact statements and safety assessments of facilities near the proposed repository contain significant information on potential hazards at such facilities. Any such information that would be applicable and useful for the proposed Yucca Mountain site should be extracted and documented in the data base being developed. This would be useful information for the staff reviewers of a potential license application.
- (4) Before this data base is finalized, it would be helpful to conduct a demonstration for the staff.

Please also consider the following specific comments as you finalize the report:

- (1) Page xi: "...proposed 10 CFR 63.xxx....", Part 63 is Draft final and no longer "proposed". Please update the paper to reflect this change.
- (2) Page 4 and Figure 2-1: 2nd paragraph. The description of the database architecture in Section 2.1 does not follow the information in Figure 2-1. Several items in Fig. 2-1 are not included in the database descriptions for Hazards, Nearby Sites, and

References. Also, Distance and Facility descriptions are on the left of Fig 2-1 which would indicate they are members of the Site and Nearby Sites databases and not the Hazards database as described in Section 2.1. Please clarify the Figure or Section 2.1 to match each other.

(3) Page 5, Figure 2-1. The water based vehicle hazard should be removed. These should only be a concern if there were navigable water within 5 miles of the repository or if water based vehicles were staged near the repository so as to become water borne during a flood. Since the repository is in an arid region far from navigable water, this hazard should be excluded.

(4) Page 6, Section 2.3: "The Hazards database..." From Figure 2-2 (page 6), and Figure 2-3 (page 7, also Figure 2-7, page 11), there is no Hazards database but only a Potential Hazards database tab and map, respectively. Are these two different things-potential hazards and hazards? This inconsistency is found throughout the document.

(5) Page 6, Figure 2-2. The units for distance and other quantities need to be clarified. Can searches be made for characteristics, quantity, and reference in figures 2-2 and 2-4?

(6) Page 6, Figure 2-2 and page 9, Figure 2-5. Airborne radiation release would typically be identified by activity (i.e. curies, bequerels) or by mass (grams, kilograms). Rem is a dose term and would vary with the receptor. It would also be useful to identify the isotopes involved and their chemical form.

(7) Page 10, 2nd line, "then saved to the database by..." Because this is a highly complex explanation of the system, it may be necessary to add 'saved to the user's database' to ensure the reader knows only alterations can be performed on the working database, not the Hazards/Potential Hazards main database. In six lines of text, the word 'database' is used six times. Without an adjective in front of database, the reader can become confused.

(8) Page 12, 2nd paragraph. The only option given for a 'Find by Site' search is to click on the map. What happened to the option of typing in a location as described on Page 7 and illustrated in Figure 2-3 (page 7)?

(9) Page 13, Section 2.7. If the user exported data from version 1.0 into his user database and that exported data is updated, how can he find out that this information has been updated in version 2.0?

(10) Page 26, last paragraph. "All this information.....update the Hazards and Near-by Facilities tables". Should tables be databases?

(11) Page 28. References. What is the purpose of the lines in front of select references?

A. Chowdhury

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Comments on the subject report were provided by Banad Jagannath, Alvin Henry, and Dennis Galvin of the preclosure team. If you have any questions regarding the comments, you may contact me at (301) 415-6695 or via e-mail (msn1@nrc.gov). No written response to this letter is required and the subject report is considered to fulfill the Center's contractual obligations for this Intermediate Milestone. If there are additional comments from other staff reviewers on this report, or any recommendations for future work by other reviewers, I will forward them to you as and when they become available.

Sincerely,

/RA/

Mysore Nataraja,
Program Element Manager

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