Colorado Department of Health

Review and Comment
Draft Technical Memorandum (TM) #8 - Identification of Contaminants of Concern (COCs) for OU 1
October 1992

General Comments

1) Because DOE has not considered direct exposure (ingestion and dermal contact) to ground water, the methodology of determining the list of COCs is fundamentally flawed. The division has previously stated our requirement that these exposure pathways be quantitatively evaluated.

Response: Please see responses to similar comments for Technical Memoranda Nos. 6 and 7.

2) The Executive Summary states that all exposure scenarios in TM 6 include direct contact with surface soil and breathing air influenced by contaminants in soil. This is incorrect. TM 6 dealt with direct exposure to soil and did not differentiate between surface soil and subsurface soil. However, this TM does not consider sub-surface soils. The Division has stated that direct exposure to all sources of contamination and contaminated material is required. This would include direct exposure to any sub-surface soil contamination.

Response: Although exposure to sub-surface soils was not mentioned when Technical Memorandum No.6 was reviewed, DOE was able to incorporate this late request and it was considered in the October 1992 Draft PHE as part of the hypothetical future commercial/industrial scenario. It is assumed that a future worker spend two weeks in the construction/excavation of a building foundation. (As indicated informally, this contribution to overall risk is negligible.) Surface soil data was used in the identification of COCs because those samples exhibited higher concentrations than did sub-surface soils.

3) Using a risk summation cut-off of 99% (used in Section 2.2.5 of TM 8) is presented in TAGS as an example or guideline. RAGS also states that a higher value may be needed if site risks are expected to be high (page 5-24). Based on past data, the Division expects that risks from the site will, indeed, be high. This is substantiated by the approximate risk levels and hazard quotients presented on Tables 2-4 through 2-8 of the document. Therefore, the Division would suggest that a risk summation cut-off of 99.9% or greater may have been more appropriate. In addition, the Division requests that if pathway specific toxicity information indicates that certain chemicals will present unacceptable risks, they be retained on the COC list.

Response: The toxicity screen using a 99 percent cut-off was discussed as an alternative to risk-based screening at the July 15, 1992 meeting and was

included because of positive EPA/CDH feedback during the meeting and during the follow-up conference call on September 18, 1992. RAGS does not define expected "high" risks, but it is reasonable to assume that it is well above the NCP acceptable risk range (10^{-6} to 10^{-4}). Preliminary risk estimates indicated that the site-wide RME risk would be within the NCP risk range. In addition, the risk factors estimated using the method in RAGS 5.9.5 do not consider transport and fate and therefore "have no meaning outside the context of the screening procedure". Without reason to expect high risks, the suggested cut-off value of 99 percent was used.

Specific Comments:

Section 2.2.1: Please provide each site-specific chemical analyte list with the associated detection limits used for the COC determination.

Limiting the chemical analyte list for ground water to volatile and semi-volatile organics is not appropriate. Ingestion and dermal contact with ground water must be considered, thereby increasing the list of potential COCs to include metals, inorganics, radionuclides, PCBs, and pesticides.

Response: The complete ground water data set, including multiple detection limits, was made available on electronic disk immediately upon request. Please see responses to similar comments on ground water ingestion for Technical Memoranda Nos. 6 and 7. Based on a pathway analysis, deleting non-volatiles was conservative as it avoided interference with the toxicity screen.

Figure 2-1: The methodology presented on this flowchart for hotspots is incorrect. Section 6.5.3 of RAGS (page 6-28) states that "if a hot spot is located near an area which, because of site or population characteristics, is visited or used more frequently, exposure to the hot spot should be assessed separately." Since the future on-site residential exposure scenario assumes direct exposure (i.e., visited frequently), any contaminant associated with any hot spot must become a COC.

Response: After previous interagency meetings (November 21, 1991, December 11, 1991) where EPA/CDH input was invited and incorporated, the protocol for identification of COCs was presented at the July 15, 1992 meeting and discussed during a teleconference call on September 18, 1992. Several concerns were addressed during the call and indication was given to DOE that there were "no show-stoppers".

A contaminant was retained in the screening process if associated with a hot spot. The only hot spot identified concerned VOCs in IHSS 119.1. The toxicity screen used maximum concentrations and therefore assumed

that the hypothetical future on-site residential structure was located directly over the hot spot. Acetone was the only contaminant that was associated with a hot spot that did not survive the toxicity screen (approximately 0.1 percent of the risk). Since it was represented by several other VOCs, professional judgement was not used to retain it.

Tables 2-1 and 2-2a thru 2-2d: Please indicate on this table that the minimum concentration detected equals the detection limit.

Response: Comment noted and appreciated, however, it was received to late to be addressed in the October 1992 Draft PHE. Clarification will be provided in the Final PHE.

Section 2.2.2: Section 5.9.3 of RAGS (page 5-22) points out that a detection frequency screen is not appropriate for any chemicals expected to be present at the site. Please clarify in this section if any of the chemicals screened out by detection frequency are known or suspected to be present based on site history and/or degradation of their known contaminants.

Response: The detection frequency screen was presented in several interagency meetings beginning in November 21, 1991, no input was received on this issue. Since EPA uses detection frequency screens, DOE concludes they are appropriate. No chemicals suspected to be present based on historical waste related activities were screened out.

Section 2.2.3: Using the mean to aid in the determination of hot spots is appropriate only for chemicals that may be contaminants but are also naturally occurring. For any anthropogenic chemicals, the yardstick used should be presence/absence. Admittedly, man-made chemicals hopefully have many non-detects averaged in to the mean. However, when any levels of contamination are averaged into zero, or non-detect, the result is greater than zero and may, under the current methodology, disqualify some contamination. (See RAGS Section 5.7.4, page 5-19)

Response: Please see response to specific EPA comments 1 and 2 on Technical Memorandum No. 8.

Section 2.2.4: A flow diagram should be included to describe those statistical processes used to determine COCs. In addition, numerical statistics should be reported with corresponding measures of confidence (i.e., a p-value or a confidence interval).

Response: Based on a teleconference with the agencies on this subject, additional clarification on statistics has been provided in the October 1992 Draft PHE.

<u>Table 2-10:</u> Based on text on page 2-13 and on the above comment to Figure 2-1 regarding hot spots, acetone should be retained on the list of COCs.

Response: Please see comment response for Figure 2-1. Acetone was identified as a lab contaminant and is discussed in the October 1992 Draft RI.