

**ATTACHMENT A
COMMENT RESPONSE FOR
TECHNICAL MEMORANDA Nos. 6 thru 9**

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A-OU01-000423

Colorado Department of Health

Review and Comment Technical Memorandum #6 - Exposure Scenarios OU1 - 881 Hillside June 1992

GENERAL COMMENTS:

1. *A remaining basic problem included in this TM is the lack of consideration of a direct exposure to ground water. We continue to believe that there are many technical issues why ground water should be considered in the baseline risk assessment (BRA) even after the installation of the French Drain. This is particularly true since the BRA must assess baseline conditions, assuming no further action. However, as we stated in our original comments to the draft version of this document, direct exposure to ground water must be considered per Federal Register, Volume 52, Number 53, Thursday, March 19, 1987, pp. 8704-8709. Therefore, the Division expects a ground water exposure scenario to be incorporated into the quantitative treatment already being given to other aspects of the future on-site residential use scenario. (NOTE: The Federal Register noted above is specifically listed in IAG Attachment 2 (Statement of Work), Section I.A.)*

Response: Technical Memorandum No. 6 was issued in January 1992 and addressed the ground water ingestion issue with an investigation and simulation of water production capabilities which was reviewed by the State Engineers Office (see Attachment 1) and discussed at the March 18, 1992 meeting. Following EPA/CDH input, a well production test was conducted and results included in Technical Memorandum No. 6, Revision 4.0, issued June 1992. The findings indicate that the upper and lower hydrostratigraphic units (HSU) at the 881 Hillside are not reliable sources of ground water for normal domestic purposes. This issue was also discussed at several subsequent meetings on July 15, 1992, July 1, 1992, and September 9, 1992.

The Baseline Risk Assessment (BRA) quantifies risk under the assumption of no future action. Since the French Drain, recovery well, and water treatment system are already in place, it is reasonable to consider these features as part of the existing 881 Hillside site conditions. Since the French Drain and related structures reduce the risk, as detailed by Rockwell International (1988), additional assessment of risk without considering the French Drain is not warranted.

The economic and technical justification for implementing the French Drain is provided by EG&G (1990). That document also summarizes the findings of the feasibility report (Rockwell International 1988). The following primary observations and conclusions are discussed in the French Drain decision document (EG&G 1990):

- Downgradient of the 881 Hillside area, alluvial ground-water chemistry (upper HSU) is characterized by the absence of volatile organic carbon compounds. This observation was also made in the Phase III Work Plan (EG&G 1991). Data collected as part of the Phase III RI supports this observation. The same observations generally apply to inorganic and radioactive contaminants (see page 2-28 of EG&G 1990).
- Three alternative remedial options were considered in detail based on an agreement between DOE and the State of Colorado in June 1989 (EG&G 1990, page 4-3). The French Drain was chosen because: (1) it "is the most extensive interim action considered...", (2) it will effectively collect contaminated ground water from the 881 Hillside area, and (3) it will significantly reduce potential releases to downgradient ground water. Data collected prior to the Phase III Work Plan and during the Phase III RI support these conclusions. The data collected thus far indicate that the French Drain is located correctly and will collect all shallow contaminated ground water.
- The French Drain is designed such that it "will intercept and contain all alluvial ground water flowing from the area (EG&G 1990, page 4-46). Furthermore, the drain is keyed into bedrock, has a collection system, and has a small-permeability geomembrane on its downgradient side to minimize flow out the southern face of the drain.

Given the above discussion and in accordance with EPA risk assessment guidance suggesting the elimination of a pathway, if the probability of occurrence is very low, the French Drain will be considered to be part of the site and risks attributable to direct ingestion of ground water will not be quantitatively assessed.

SPECIFIC COMMENTS:

1. Section 1.1: *The quote of Attachment 2, Section VII.D.1.b of the IAG is incorrect. The correct version of the quoted text is "the present, future, potential and reasonable use exposure scenarios with a description of the assumptions made and the use of the data."*

Response: Comment is noted that the words "future" and "exposure scenarios" were inadvertently left out of the quote. Technical Memorandum No. 6 does consider both of these items.

2. Figure 5-1: As mentioned in General Comment 1 above, a pathway needs to be added to this figure which goes directly from the "Alluvial Ground Water" box to an ingestion exposure.

Response: Please note the response to General Comment 1.

3. Table 5-3: In order to judge the adequacy of the parameters listed on this table, the Division needs to understand which parameters will be used in each scenario specific intake equation. Please provide the equations, the parameters associated with each, and an explanation of the parameter source or parameter calculation when appropriate in the Phase III RFI/RI Report.

Response: A full description and clarification of exposure parameters and intake/risk equations are provided in the October 1992 Draft of the Public Health Evaluation.