

Colorado Department of Health

Review and Comment

Technical Memorandum (TM) 6 - Model Descriptions
Operable Unit 2, January, 1993

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General Comments:

- 1) Comments from the Division to TM 5 for OU 2 will have a direct impact on several sections of TM 6. Affected sections include the Executive Summary, Section 1.1, all of Section 2, and portions of Section 3.
- 2) To support both the risk assessment and the feasibility study, history matching needs to be attempted for at least the ground water modelling. In order to have any confidence in a model's ability to predict future exposure point concentrations, the ability of the model to recreate present conditions (given past knowledge, source characteristics, and chemical behavior) must be calibrated.

Specific Comments:

Section 1.1: Please clarify the statement "This document does not address the application of selected models to the site-specific conditions at OU-2; that will be included in the Phase II RFI/RI Report" that occurs in the second paragraph on page 1-2. Unless the models chosen in this TM can address site-specific conditions, they should not be used. We presume that this evaluation has taken place and would like to see this presented in this TM. Delaying the communication of this information to the RFI/RI Report could result in the same problems that occurred in the OU 1 Report. The more information that can be included in these TMs prior to submission of the Report, the better.

Section 3.1: This section never clearly states how the selected models will be calibrated. Calibration is necessary for past, current, and future site representations and process descriptions in support of risk assessments and feasibility studies.

Section 3.2: Please ensure that a realistic treatment of the upgradient edge of the modelled area and its effect on the

hydrology of OU 2 is incorporated into the ground water modelling. This was a problem in the draft RFI/RI Report for OU 1 in that the upgradient portions of OU 1 were not adequately or accurately represented.

Section 3.3: Please provide more information on how other sources of available data (e.g., chemical decay and dispersivity, etc.) will be integrated into the MT3D effort. Some of these parameters may require separate modelling efforts to determine quality MT3D inputs.

Section 3.4: The Division does not believe that ONED3 is a valid model for colluvial ground water. Many of the basic assumptions for ONED3, including use for confined aquifers, horizontal flow, homogenous and isotropic medium, and fully saturated and steady state conditions, are not satisfied by the colluvial ground water. The Division suggests that a 2D profile model used with adequate understanding of the colluvial heterogeneity would be more valid.

Section 3.5: The Division does not believe that the surface water model mass-balance equation given is adequate. Risk assessment is dependent on both human health parameters and ecological parameters. Both of these endpoints have chronic and acute considerations which must be assessed, neither of which can be assessed by using average annual concentrations. Certain potentially dangerous solutes might be concentrated during periods of low flow causing chronic effects. Others might only occur during high flow events.

On page 3-11, please define the terms M, L, and T in the soil loss equation.