

RESPONSES TO THE
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
COMMENTS ON TECHNICAL MEMORANDUM #2
(HUMAN HEALTH RISK ASSESSMENT EXPOSURE SCENARIOS)
FOR
OPERABLE UNIT 3

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Introduction

These detailed responses are provided for the purpose of addressing formal comments from the Colorado Department of Public Health and Environment (CDPHE) regarding the Addendum to Technical Memorandum No. 2, Human Health Risk Assessment, Exposure Scenarios, Operable Unit 3, dated April 11, 1995. CDPHE comments are presented by comment number. U.S. Department of Energy (DOE) responses immediately follow the CDPHE comment.

CDPHE Comment #1

Updates will need to be made based on the changes to the CDPHE conservative screen, specifically, Mower Reservoir and Standley Lake surface and deep sediments. Pending the results of the screen, these sediments may also have to be assessed in the baseline risk assessment for residential exposure.

DOE Response to Comment #1

Technical Memorandum #4, Human Health Risk Assessment Chemicals of Concern, Operable Unit 3, showed that no Chemicals of Concern (COC) exist for surface sediments at Standley Lake and Mower Reservoir. This technical memorandum has been reviewed and approved for use at Operable Unit 3. In addition, the Responses to Colorado Department of Public Health and Environment Comments on the CDPHE Conservative Screen Letter Report For OU 3 submitted for agency review on June 23, 1995 show that the subsurface sediments at Standley Lake and Mower Reservoir do not represent areas of concern. These responses are currently being reviewed by CDPHE. It is not currently anticipated that subsurface sediments will be included as areas of concern in the baseline risk assessment for residential exposure.

CDPHE Comment #2

Section 2.0: Some discussion of potential future uses of Mower Reservoir should be included in this section. Also, some discussion of potential hazards to the public of exposure to dried surface sediment at Standley Lake such as occurred this past summer and autumn during periods of low water should be included. This was a concern voiced by several citizen' groups and municipal and county groups.

DOE Response to Comment #2

Since no COCs exist for surface or subsurface sediments at Standley Lake and Mower Reservoir, and no areas of concern were identified through the CDPHE conservative screen, there is no exposure risk to these sediments. This information will be outlined further in the Remedial Investigation Report.

CDPHE Comment #3

Section 5.0: EPA has revised the equation in Part B RAGS for calculating external irradiation in order to reflect the changes it made in calculating external exposure slope factors listed in Table 4a of HEAST, 1992 and equivalent tables in HEAST from subsequent years. According to the memorandum from Janine Dinan, 1992, "Changes to Equations in the Part B guidance", "The "old" external slope factors were calculated assuming that individual gamma-emitting radionuclides were uniformly distributed over an infinite surface area with no depth, and were expressed in units of risk/year per pCi/m² of soil". Therefore, assumptions had to be made when calculating the risk

or PRGs for the depth of the radionuclide in soil, D, and the soil density, SD.

However, the external slope factors EPA has calculated since HEAST 1992, already account for soil depth and density (and are expressed in correct units of risk/year per pCi/g soil). Therefore, the term D and SD have been dropped from the revised equations in Part B RAGS to calculate risk and PRGs.

Thus, the equation listed on page 3 of 4, should not be used in conjunction with post-HEAST 1992 external slope factors to calculate risk. This section should be revised according to the most recent guidance (Dinan, 1992).

DOE Response to Comment #3

The latest external exposure slope factors from the Health Effects Assessment Summary Tables (HEAST) have been used in calculating risks. The units of these external exposure slope factors are in risk/year per pCi/gram soil.

CDPHE Comment #4

Table A-1: The division does not agree with the way DOE calculated the Central Tendency values for soil and sediment ingestion for both the child and adult future recreational scenario. Stanek and Calabrese (1992) reported that about 50% of soil intake for children is from outdoor soil and about 50% is from indoor dust, regardless of the amount of time the children spent outdoors (Stanek and Calabrese, 1992 J. Soil Contamination 1(1):1-28). Therefore, it does not seem appropriate to factor in time spent at a site.

Assuming that people would only be outside at the open space site, this would still mean that the central tendency value for children should be 50% of 100 mg/d or 50 mg/d, rather than the 15 mg/day DOE obtained by factoring in the amount of time spent on the site. Similarly a more appropriate central tendency value for adults would be 50% of 50 mg/d or 25 mg/d, instead of the 8 mg/d.

DOE Response to Comment #4

We agree. The soil and sediment ingestion rates for the child and adult future recreational scenario will be changed to 50 mg/day and 25 mg/day, respectively. This will be reflected in the RFI/RI report Baseline Risk Assessment.