

**TECHNICAL REVIEW COMMENTS ON
HUMAN HEALTH RISK ASSESSMENT
903 PAD, MOUND AND EAST TRENCHES AREA (OU2)
TECHNICAL MEMORANDUM NO. 5**

**ROCKY FLATS PLANT
GOLDEN, COLORADO**

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 8 Federal Facilities Remedial Branch
Denver, Colorado**

Work Assignment	:	C08055
EPA Region	:	8
Site No.	:	C07890010526
Date Prepared	:	February 9, 1993
Contract No.	:	68-W9-0009
PRC Number	:	012-C08055
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1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) conducted a technical review of the Human Health Risk Assessment, 903 pad, Mound, and East Trenches Area (Operable Unit 2 [OU2]), Technical Memorandum No. 5, Exposure Scenarios for the Rocky Flats Plant (RFP). This document was prepared by the U.S. Department of Energy (DOE) in January 1993. PRC prepared this review for the U.S. Environmental Protection Agency (EPA) under contract number 68-W9-0009, Technical Enforcement Support (TES) 12, work assignment number C08055.

Subsequent to PRC's independent review, our comments were compared to those prepared by EPA toxicologist Susan Griffin, Ph.D.. All duplicate comments were eliminated for expediency and to streamline the review process as requested by the EPA Work Assignment Manager, William Fraser. Therefore, this technical review only contains specific and general comments that supplement those made by Dr. Griffin. The general comments address the overall scope of the document, while the specific comments focus on tables and text.

2.0 GENERAL COMMENTS

1. The intent of this document is to identify and characterize potential and reasonable maximum exposure scenarios for present and future human receptors in OU2 and present reasonable maximum intake parameters which will be used to estimate chemical intake. Although it comprehensively identifies exposure scenarios, the intake parameters presented in most of the scenarios fall short of reasonable maximum values conventionally used for Superfund sites. The parameters should be revised to reflect a more conservative approach.
2. The document asserts that future development of off-site land will be mainly industrial, which is not supported by information presented in the document. While a future off-site residential scenario is considered in the risk assessment, this assertion is misleading and conflicts with tables presented in Section 3.0 which reflect nearly a three-fold population increase in the regions surrounding RFP. The text should be revised to present a more accurate discussion of future off-site land use.

3.0 SPECIFIC COMMENTS

1. Page 4-4, Second Paragraph. The text states that "Dermal contact with soil will only be assessed quantitatively if sampling results from the OU2 Phase II investigation demonstrate the presence of organic chemicals of concern in surface soil samples at concentrations exceeding background." This approach is inappropriate for three reasons (EPA 1989a). First, all chemicals of concern (COCs) should be evaluated for every applicable exposure pathway. Second, unlike inorganic chemicals which are naturally present, all organic chemicals should be considered to be anthropogenic. Thus, there are no background concentrations which COCs can be compared to. Third, if organic chemicals are detected in background samples, the selection of the background area will be in question because it indicates the area was impacted by RFP activities.

Rationale: All COCs should be evaluated for all exposure pathways. Organic chemicals should be considered anthropogenic can not be compared to background samples.

2. Pages 4-15 through 4-17, Section 4.5.2.5. Ground-water ingestion has not been considered for the future off-site residential scenario. If ground-water modeling results indicate that off-site residents are downgradient, then this pathway should be evaluated as part of a reasonable maximum exposure scenario.

Rationale: All potential and reasonable maximum exposure scenarios should be evaluated.

3. Page 5-10, Section 5.1.8, First Paragraph. The document states that intake of radionuclides will be calculated and compared to radiation protection standards. This comparison is unnecessary for a human health risk assessment prepared for a Superfund site. The goal of a human health risk assessment is to determine baseline health risks and evaluate public health hazards at a site, which provide a basis for determining remedial activities that will be protective of public health. Radiation protection standards are designed to protect adult, healthy male workers in an occupational setting, with control measures in place to closely

monitor and limit exposure. They are not meant to be protective of sensitive receptors in a population, who could be exposed to radiation without limits and control measures in place.

Rationale: A comparison of radionuclide intake to radiation protection standards is not necessary and does not follow EPA guidance for a human health risk assessment.

4. Table 5-11. Averaging time for construction workers should be 365 days (EPA 1989b). The table lists 30 days. The table should be corrected.

Rationale: The table should reflect generally accepted exposure parameters.

4.0 REFERENCES

- EPA, 1989a. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A). Interim final. EPA/540/1-89/002. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C.
- EPA, 1989b. Exposure Factors Handbook. EPA/600/8-89/043. U.S. Environmental Protection Agency, Office of Health and Environmental Assessment, Washington, D.C.