



federal facility from promulgated State requirements EPA was disappointed to find the position presented in this document since it only antagonizes the working relationship of the parties and may impede our mutual goal of cleaning up Rocky Flats Since DOE has failed to specify a date at which the ARARS working group proposed by CDH might meet EPA proposes that such a meeting be held during the week of June 13 as schedules permit

- 3 This document mentions EPA's Risk Assessment Guidance Part B 'Development of Risk based Preliminary Remediation Goals (USEPA 1991) in the discussion of the PRG derivation however some of the equations and parameter values presented are quite different from those which appear in the EPA guidance As a result most of the calculated PRGs for residential use of groundwater are significantly higher than PRGs calculated by EPA using standard default values Since there is no explanation offered to justify why DOE used different values they are not acceptable
- 4 Using EPA Region IX's PRG spreadsheet as a source of toxicity values for PRG calculation is not recommended The hierarchy of sources for toxicity values is clearly presented in EPA's Risk Assessment Guidance for Superfund Part A (USEPA 1989) with EPA's IRIS database being first and the Health Effects Summary Tables being second These sources are peer reviewed and well documented whereas the Region IX spreadsheets are not For this reason EPA Region VII does not automatically accept or recommend use of the PRGs shown from the Region IX spreadsheets although they are probably fairly accurate The Region IX tables are to be used only for general risk screening purposes and not for setting site specific cleanup levels

#### Specific Comments

- 1 Page 18, Groundwater exposure routes. Since inhalation of indoor VOCs from basement vapors is an exposure route for this scenario in the BRA as stated on page 16 it must also be put into the calculation of PRGs for this scenario This will also necessitate the presentation of the equations and parameter values used for this exposure route
- 2 Page 18, Equation 2 The section evaluating dermal contact with groundwater does not indicate that oral carcinogenic Slope Factors (CSFs) and Reference Doses (RfDs) were modified to represent an absorbed dose Oral CSFs and RfDs are derived based on an administered dose and need to be adjusted with a gastrointestinal absorption factor Appendix A of RAGS (EPA 1989) details the methodology for modifying oral toxicity values to absorbed dose

- 3 Page 20 Parameters values for Groundwater PRGs The recommended parameter for exposure duration is 30 years not 24 years (USEPA 1991a USEPA 1991b) The recommended volatilization factor is 0.5 L/m<sup>3</sup> not 0.065 mg/m<sup>3</sup> per mg/l (USEPA 1991a)
- 4 Page 22 Development of Soil PRG The equations used to develop PRGs for soil should also include external exposure per EPA guidance (USEPA 1991a)
- 5 Page 22 Inhalation of Particulates from Soil The recommended generic value for RD (which is termed particulate emission factor in the EPA guidance) is 4.63 X 10<sup>9</sup> m<sup>3</sup>/kg not 4.2 X 10<sup>8</sup> kg/m<sup>3</sup> (USEPA 1991a)
- 6 Page 22 23 Ingestion of Home Produce The recommended value for exposure duration is 30 years (USEPA 1991a) The recommended value for intake of homegrown produce is 120 gm/day not 78 gm/day (USEPA 1991b) The equation for developing PRGs in soil should be time weighted to include 6 years of exposure to a child ingesting 200 mg/day of soil in addition to 24 years as an adult ingesting 100 mg/day of soil per EPA guidance (USEPA 1991a) It would be wise to further evaluate the appropriateness of the assumptions which were used to develop the plant uptake factors Unfortunately this information was not available in this document
- 7 Page 25, paragraphs 1 and 2 This section needs to be revised to clarify how PRGs for the commercial/industrial worker scenario and ecological researcher scenario were calculated If inhalation of soil gas through the foundation was included as part of the calculation for one of the scenarios then the equations and assumptions used should be provided in the text It is also unclear what is meant by PRGs were estimated by linearly reducing risk Even if a model is used to derive an air concentration (i.e. for VOC concentrations in basements) this concentration is placed into the PRG equation and the resulting PRG for groundwater is a straightforward calculation PRGs must be calculated not estimated
- 8 Page 27, Table 2.6 This table should be followed by a footnote stating what the existing concentration column represents It is not clear where these values were derived from and if they are the mean concentration or the upper 95 percent confidence limit of the mean concentration PRG values should be compared to the upper 95 percent confidence limit concentrations and not the mean contaminant concentrations

The title should specify that these PRGs are for residential use of groundwater

- 9 Appendix A Appendix A must be revised to reflect the recommendations provided above (i.e. 30 year exposure duration removal of Region IX spreadsheets as source of toxicity data time weighted exposure to both child and adult in soil ingestion PRG calculation EPA recommended particulate inhalation factor and volatilization factor etc )

If you have any questions about these comments please contact Gary Kleeman of my staff at 294 1071

Sincerely

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for Martin Hestmark Manager  
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cc Scott Grace DOE  
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REFERENCES

U S Environmental Protection Agency (1989) Risk Assessment  
Guidance for Superfund Volume I Human Evaluation Manual Part  
A Office of Emergency and Remedial Response EPA/540/1 89/002

U S Environmental Protection Agency (1991a) Human Health  
Evaluation Manual Part B Development of Risk based  
Preliminary Remediation Goals Office of Solid Waste and  
Emergency Response OSWER Directive 9285 7 01B

U S Environmental Protection Agency (1991b) Human Health  
Evaluation Manual Supplemental Guidance Standard Default  
Exposure Factors Office of Solid Waste and Emergency Response  
OSWER Directive 9285 6 03