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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

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Ref: 8HWM-FF

OCT 27 1994

Mr. Steve Slaten
Department of Energy
Rocky Flats Office
P.O. Box 928
Golden, Colorado 80402-0928

OCT 27 1994

RE: Final Phase III RFI/RI Report Operable Unit No. 1

Dear Mr. Slaten:

EPA has reviewed the revised Final Phase III RFI/RI Report for OU 1 and has found that the most of its previous comments have been adequately addressed in this version of the report. There are a small number of previously cited issues however, that remain inadequately addressed and these are listed below. It is not anticipated that the revisions needed to satisfy these issues will impact the final conclusions of the report. Nevertheless, DOE must understand that EPA cannot approve a document that it knows to have inaccurate, incomplete, or incorrect statements, data, or calculations. It should be possible to make the necessary changes with minimal time and effort and without resubmitting or reprinting the entire report.

In light of the current discussions between the agencies regarding implementation of a watershed approach to Environmental Evaluations, EPA is not approving the OU 1 Environmental Evaluation (EE) portion of the RFI/RI Report. Some of the issues that were raised by our comments regarding the OU 1 EE have not been resolved, but should be addressed once the watershed approach is implemented. It is EPA's expectation that this approach will also provide better consistency between operable units for the evaluation of environmental conditions. EPA believes that not approving the OU 1 EE will have no impact on the ongoing work to determine a remedy at OU 1, since the OU 1 Corrective Measures Study/Feasibility Study (CMS/FS) is only addressing groundwater.

Therefore, EPA will approve the Final Phase III RFI/RI Report for Operable Unit No. 1, with the exception of the Environmental Evaluation section, upon the satisfactory resolution of the comments listed below.

Specific Comments

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Appendix D Determination of Contaminants

- 1. Page D-30, paragraph 3. The rationale presented here to

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explain DOE's conclusion that methylene chloride is present due to laboratory contamination would be more thorough if it included additional data interpretation. Although this report was revised to separately discuss methylene chloride, acetone, and 2-butanone as requested, essentially the same rationale is presented as in the November 1993 version, without additional data analysis. An additional figure showing where the non-B qualified detections occurred, the maximum non-B qualified concentration, as well as indicating the percentage of non-B qualified detections would have been valuable. EPA examined these aspects in arriving at its decision to concur with DOE's conclusion regarding methylene chloride. In future reports, DOE must not assume that the presence of these chemicals will be automatically attributed to laboratory contamination. B-qualified site samples for organic contaminants should also be compared to 10 times the maximum detected concentration in the blank samples. Site concentrations less than 10 times the blank concentration may be treated as non-detects. A more complete data interpretation, including the analyses listed above, will be necessary in future reports.

2. Table D-7, Page 14. EPA's comment #53 of the previous version of this report noted inconsistencies regarding whether or not Uranium is a groundwater contaminant. Due to these inconsistencies, the question was also posed: Is Uranium a contaminant at OU 1 or is it naturally occurring? This revised report made a slight change to the summary rationale presented in this table which basically states that spatial distributions and isotopic ratios indicate that Uranium is not a groundwater contaminant. Nevertheless, a "Y" in the final column of table D-7 for U-238 still indicates that it is a contaminant in groundwater, contrary to other tables and the text. In looking at uranium concentrations in more detail, it was found that the background concentrations listed in Table D-1, page 3 appear to have an unrealistic variance between the Rocky Flats Alluvium and other alluvial lithologies for unfiltered groundwater. This table shows the background colluvial and valley fill alluvial groundwater U-238 concentrations as being about two orders of magnitude greater than the U-238 concentration in Rocky Flats Alluvial groundwater.

For this reason, DOE must reassess the data that was used to derive these background concentrations for Uranium in groundwater to determine whether they are valid. Since part of the problem may be due to the low number of samples available for uranium, it would probably be better to combine all upper hydrostratigraphic unit (UHSU) samples to derive one background value for groundwater found in the Rocky Flats Alluvial, Colluvial, Valley Fill Alluvial and Weathered Claystone lithologies. Once this assessment is done, DOE must again compare the OU 1 groundwater uranium concentrations to background concentrations to determine whether it is a contaminant of groundwater.

Appendix F Public Health Evaluation

3. Page F4-12, Section F4.3.2; pages F7-6, F7-8. The document was not revised in response to EPA's previous comment #64. This comment stresses that the discussion and comparison of exposure concentrations to health and safety plans for current workers is not appropriate in a risk assessment of a Superfund site, and therefore it should be removed from the text. An alternative to removal of the text was also suggested, whereby DOE could calculate risks that would correspond to exposure to contaminant levels permitted by OSHA. DOE's response in a separate letter states that the comparison was made and retained for the purpose of future compliance decisions with OSHA and NRC regulations. EPA does not accept this as a valid reason for not revising the document as previously suggested.

4. Page F7-19 through F7-22: The document was not revised at all in response to EPA's previous comment #72. The comment requests that uncertainty surrounding toxicity values be discussed qualitatively and that quantitative analyses not be used. The document contains quantitative uncertainty analyses of toxicity values for 1,1-DCE and carbon tetrachloride (Figures F7-13, F7-14, and F7-15). Therefore, the comment has been inadequately addressed, and the text and figures pertaining to quantitative analyses must be deleted.

EPA's Office of Research and Development has been contacted independently by DOE Headquarters' Air, Water, and Radiation Division to provide peer review of the quantitative uncertainty analysis of EPA's slope factors. Since the peer review of this work has not yet been completed, it is inappropriate for DOE to attempt to use this information in a risk assessment at Rocky Flats.

EPA also requested that statements be included with the quantitative uncertainty analysis to the effect that the three agencies (EPA, DOE and Colorado Department of Health [CDH]) have not yet agreed on the shape of the distribution curve for lifetime estimates, and that the values and distributions used will not be considered as an acceptable format or precedent for use at other EPA Superfund sites. A Monte Carlo analysis has been used to quantify uncertainty associated with risk calculations, and the above statements have not been included in either the text or tables. Therefore, the response to this portion of the comment is inadequate, and the text and tables must be corrected.

5. Page F7-27, First full Paragraph. The first full paragraph on Page F7-27 states "risk factors for radionuclides are based on fatalities while slope factors for nonradiological carcinogens are based incidence. There are limitations to adding these risks, but an approximate method of summation is generally used

in collective risk estimates. To calculate the estimated risk to the maximally exposed off-site individual, the sum of the radiological risks is added to one-half the sum of the nonradiological carcinogenic risks." This statement is inaccurate. EPA-derived slope factors for radionuclides are based on incidence rates, not fatalities associated with radiation exposure. The Health Effects Assessment Summary Tables (HEAST) (EPA 1993) states "slope factors for radionuclides are characterized as best estimates (i.e. median or 50th percentile values) of the age-averaged lifetime total excess cancer incidence risk per unit intake or exposure."

Although both slope factors are based on incidence rates, carcinogenic risks from exposure to radionuclide and chemical contaminants should not be added. According to EPA guidance (EPA 1989a), there are two differences that preclude summing the two risk estimates.

"For radionuclides, ... human epidemiological data form the basis of extrapolation, while for many chemical carcinogens, laboratory experiments are the primary basis for the extrapolation. Another even more fundamental difference between the two is that slope factors for chemical carcinogens generally represent the upper bound or 95th percent confidence limit value, while radionuclide slope factors are best estimate values."

EPA guidance concludes "the two sets of risk estimates should be tabulated separately in the final baseline risk assessment" (EPA 1989a). Therefore, as previously stated in our comment #74, the risk estimates should not be summed. The text and tables must be corrected.

Appendix F Tables

6. Table F3-15. This table incorrectly lists the maximum concentration of selenium in groundwater as being $2.82E+04$. According to the preceding summary statistics tables, the maximum concentration is actually $2.2E+03$. When the latter concentration is used, selenium poses 3.9% of the total noncarcinogenic risk in groundwater instead of 34% as shown in this table. These numbers should be corrected.

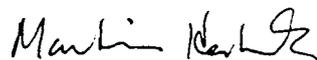
7. Tables F5-11 and F5-18: The response to EPA's previous comment #87 was inadequate. The ingestion rate for surface water in these tables is still listed as 0.00002 liters per event. This value is based on the amount of surface water that would be incidently ingested if contact were made with saturated sediment. This assumes that surface water contact would not occur. Such an assumption may be made for the current on-site security worker, whose activities are well characterized. However, this assumption is inappropriate for future ecological workers or

residents. The EPA default surface water ingestion rate of 50 milliliters per event (EPA 1989a) should be used for the future on-site worker and residential receptor. This is also the value listed in Appendix C of the Risk Assessment Template.

8. Tables F5-6 and F5-22: The response to EPA's previous comment #89 was inadequate. The ingestion rate of fruits and vegetables should be 0.122 kilograms per day (kg/day). Both the Exposure Factors Handbook (EPA 1989b) and EPA's Standard Default Exposure Factors (EPA 1991) recommend this value. The tables should be corrected.

If you have any questions concerning these matters, please contact Gary Kleeman of my staff at 294-1071.

Sincerely,



Martin Hestmark, Manager
Rocky Flats Project

cc: Scott Grace, DOE
Zeke Houk, EG&G
Chris Gilbreath, CDH
Joe Schieffelin, CDH
Tim Reeves, SAIC