

SPECIFIC COMMENTS
TECHNICAL MEMORANDUM 6
OPERABLE UNIT 1

Page 8, last paragraph: Apparently DOE is concerned that the maximum reasonable exposure scenario for human health considerations may be incompatible with the maximum reasonable exposure scenario for ecological considerations. However, because the future use of Rocky Flats is so uncertain, it would be inappropriate to limit the human health assessment or the environmental evaluation because of this possible incompatibility. In accordance with the National Contingency Plan, remediation goals shall establish acceptable exposure levels that are protective of human health and the environment and shall be developed by considering, among other factors, the results of the human health risk assessment and the environmental evaluation. We believe that the remedial investigation report for Operable Unit 1 (OU 1) must consider the maximum reasonable exposure scenario for both the human health risk assessment and the environmental evaluation. During the development of remediation goals, it will be a risk management function to consider the potential incompatibility of the two and the likelihood of either scenario actually developing at the site in the future.

Page 18, Section 3.3, Current On-site land Use: It is inappropriate to use a screening method to eliminate current exposure scenarios from consideration in the baseline risk assessment. A work force currently exists at Rocky Flats. In order to fulfill the regulatory requirement in the National Contingency Plan for conducting a baseline risk assessment to characterize the current threat to human health and the environment, DOE must quantitatively evaluate the risks associated with exposure of this work force to the contaminants of OU 1. EPA and CDH will not accept a screening level assessment for this scenario.

Page 19, Last Paragraph: DOE makes reference to the fact that security personnel at Rocky Flats participate in medical monitoring programs. However, the results of these programs are not discussed. It is appropriate to discuss these results in the baseline risk assessment. This technical memorandum should indicate that such a discussion will be included.

Page 20, Third Paragraph: We disagree that a screening assessment is an appropriate basis on which to eliminate the security work force from further consideration. EPA and CDH expect to see a quantitative risk assessment for the current on site exposed populations in the baseline risk assessment. An assessment of the maximally exposed population is expected.

Page 24, Section 3.5, Future On-site Land Use: The discussion in this section is inconsistent with information given to EPA at the January 15, 1992 Natural Resources Trustee meeting at which the subject of future land use was discussed. It is our understanding from these discussions that alternative land uses are being evaluated as part of

the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Further, DOE indicated its intent to evaluate within the SWEIS the risks to workers and the public from "current conditions, including contaminated sites and uncontrolled releases", and one alternative being considered for future use was "unrestricted release". DOE's own NEPA activities as well as the National Contingency Plan require consideration of on site residential land use. Furthermore, any decision made in the PEIS or the SWEIS is not irrevocable since, "Depending on decisions made by Energy Secretary Admiral James D. Watkins, these alternatives may be subject to change." The residential scenario must be evaluated.

Page 25, First Full Paragraph: Restrictions on land use are a form of institutional control. Institutional controls, while not actively cleaning up the contamination at the site, can control exposure and, therefore, are considered to be limited action alternatives. The effectiveness of the institutional controls in controlling risk may be considered in evaluating the effectiveness of a particular remedial alternative, but not as part of the baseline risk assessment.

The baseline risk assessment must consider exposure to current contamination levels in the absence of any remediation or control, including institutional controls. For sites where institutional controls or access restrictions may be implemented to prevent future residential land use, evaluation of the residential scenario in the baseline risk assessment provides justification for this type of action.

The prominent confounding aspect of assessing risk associated with OU 1 is that the contaminant radionuclides are extremely persistent, with half lives of thousands of years. It is possible that DOE's land use policy could change in the future since decisions are highly political. Even though DOE contends that future residential development of Rocky Flats is improbable and contrary to current DOE policy, it is not possible to reliably predict demographics and policy beyond a period of 20-30 years. Since residential development is possible beyond this time period, the baseline risk assessment must include the scenario.

Including a residential scenario will provide a risk assessment that is consistent with ongoing activities at other DOE weapons complex sites. As DOE is aware, DOE-Hanford is evaluating an on site residential scenario based on current concentrations of contaminants. The risk assessment methodology agreed to by DOE and EPA at Hanford includes, in addition to a residential use scenario, agricultural, recreational, and industrial use. An important aspect of the risk assessments at Hanford is that decontamination and decommissioning are not assumed to occur prior to on site residential construction. The issue is not whether it is credible, plausible, or improbable that the land would be released for development without decontamination, but whether the risk assessment will provide an assessment of risks associated with the site in the absence of any remedial action. To preclude residential development will bias the risk assessment and

eliminate information vital to the evaluation of remedial alternatives.

Finally, DOE included consideration of future residential land use of OU 1 in the March 1, 1988 draft Feasibility Study Report for the 881 Hillside Area. DOE's current intent to omit a similar consideration in the baseline risk assessment for OU 1 is inconsistent and unjustified.

Page 29: Consideration of alternative future land uses must be based on an analysis of land use trends, planning documents for surrounding areas, suitability for residential development, and opportunities and constraints to development. It is inappropriate to consider the existence of contamination resulting from Rocky Flats activities as a constraint to development. DOE's statement that "Future on-site residential use is also unlikely since DOE ...must consider potential liabilities" inappropriately identifies contamination as a constraint to development.

DOE's statement that "risks assuming residential land use will be compared to risks associated with other land uses" is misleading. Table 4-2 on page 32 indicates that the on site residential scenario will only be evaluated qualitatively, not quantitatively, therefore any comparison would be limited. This not acceptable to EPA and CDH. The on site residential scenario must be quantitatively evaluated.

Page 26, Second Full Paragraph: The statements excerpted from the Atomic Energy Commission's (AEC) Environmental Statement regarding land acquisition at Rocky Flats may be inappropriately used out of context in TM 6. There are additional statements within the AEC document which indicate that the buffer zone area was "on the verge of being developed for residential and industrial uses" in 1972. The significance of this fact is ignored in TM 6. Other statements within the document indicate that the buffer zone was acquired by DOE not solely to preserve a band of unoccupied land in an undeveloped state to encourage increased growth of vegetation, but rather, the primary intent was to maintain isolation of the Rocky Flats Plant from the surrounding communities to allow production at the plant to continue. Given the fact that production at the plant has stopped, will the previous development pressures begin to emerge? DOE has not analyzed the AEC document for its relevance to today's reality and thus can't use this document as justification for a limited future land use consideration in the baseline risk assessment.

page 27, first paragraph: Although the preservation of areas of Rocky Flats Plant for an ecological preserve may be consistent with DOE policy, it is important to look at all possible land use alternatives to generate information on which to base risk management decisions. We strongly disagree that consistency with DOE policy is enough justification for limiting consideration of alternatives in addition to ecological preserve land use. The residential scenario should be

evaluated as a "what if" scenario. We believe that consideration of residential land use as well as ecological preserve and commercial/industrial land use is required for the baseline risk assessment. The consideration of whether these scenarios are credible, plausible, or improbable should be accomplished as part of an uncertainty analysis and should be taken into account during risk management decision making.

Page 36, Section 5.0, Exposure Pathways: The equations for each exposure pathway for each exposure scenario should be presented in this section as a means of ensuring that all the necessary parameters have been considered. This requirement is consistent with Region 8 guidance for conducting baseline risk assessments. The guidance was provided to DOE by EPA in correspondence dated November 18, 1991.

Page 37, Figure 5-1, Conceptual Model: Add consideration of the current on site exposed population to the conceptual model.

Table 5-2, Potentially Complete Exposure Pathways-Future Land Use:

- a. DOE must quantitatively consider external radiation from radionuclides in soil in the baseline risk assessment. The justification provided in TM 6 for not considering this pathway is not sufficient particularly since it has not yet been established that radioactivity levels in soils are below background levels in OU 1. The surficial soils data collection program has not been completed. Therefore, we believe it is premature to make such a conclusion.
- b. The consideration of off site exposed populations is more appropriately accomplished in the off site operable unit baseline risk assessment. The risk contributed by all the on site operable units will eventually have to be taken into account. Considering off site risks by looking at separate operable units such as is proposed by DOE in TM 6 does not provide much useful information for making remediation decisions.
- c. The previous comment notwithstanding, ingestion of livestock watered by surface water may be a complete exposure pathway given that Mower Reservoir is currently used for livestock watering.

Page 46, Table 5-3, Residential Occupant Exposure Assumptions:

- a. In accordance with OSWER Directive 925.6-03, soil ingestion rates for residential exposure scenarios are 200 mg per day for children aged 1 through 6 and 100 mg per day for others. The equation for calculating a 30 year residential exposure to soil/dust is divided into two parts. First, a six year exposure duration is evaluated for children which accounts for the period of highest soil ingestion (200 mg/day) and lowest body weight (15 kg). Second, a 24 year exposure duration is assessed for older children and adults by using a lower soil ingestion rate (100mg/day) and an adult body weight (70 kg).

b. Table 5-3 is inconsistent with the text on page 33. The text indicates that the exposed individual is assumed to consume all of his water from a residential well. Groundwater pathways must be included in table 5-3. The appropriate water ingestion rate is 2.0 liters per day.

c. The adherence factor should be 0.6 milligrams per cubic centimeter (mg/cm^3) and $0.9 \text{ mg}/\text{cm}^3$ for adults and children respectively.

d. The dermal absorption factor should be 0.1 percent and 40 percent for metals and organic compounds respectively.

e. The body surface area exposed should be 0.14 square meters and 0.3 square meters for children and adults respectively.

Table 5-4, Ecological Research Biologist Exposure Assumptions:

a. The soil ingestion rates should be 100 mg/day given the likely activities that a research biologist would be involved in.

b. The exposure duration should be 250 days per year.

Table 5-5, Commercial/Industrial Worker Exposure Assumptions:

a. The inhalation rate should be 18 cubic meters per day.

b. The body surface area should be 0.3 square meters.

c. The dermal absorption factor should be 0.1 percent and 40 percent for metals and organic compounds respectively.

Appendix B, Investigation and Simulation of Water Production Capabilities:

Due to the lack of available data, the production capabilities of hydrostratigraphic units cannot currently be discerned. Thus, the conclusions presented in Appendix B are untenable since they rely heavily on assumptions that may be incorrect. Although water production capabilities from ground water wells may be limited, further monitoring must be carried out before it is concluded that ground water is not a reliable source of drinking water. Until additional data become available and further pump tests are performed which might rule out potential future domestic use of ground water, exposure to ground water contaminants must be included in the risk assessment. We suggest that DOE collect and evaluate the pumping data from the collection well in IHSS 119.1 which is currently part of the french drain system. Conclusions regarding the potential for groundwater within OU 1 to be used for domestic purposes should be deferred until this information has been considered.