



UNITED STATES

NUCLEAR REGULATORY COMMISSION

REGION IV

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URANIUM RECOVERY FIELD OFFICE  
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DENVER, COLORADO 80225

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WM Project

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AUG 21 1985

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MEMORANDUM FOR: Leo B. Higginbotham, Chief  
Low Level Waste and Uranium Recovery Branch  
Division of Waste Management

FROM: Edward F. Hawkins, Chief  
Licensing Branch 1  
Uranium Recovery Field Office, Region IV

SUBJECT: COMMENTS ON THE UMTRAP PRELIMINARY FINAL EIS AND THE  
DRAFT RAP, SCR AND DSCR FOR INACTIVE URANIUM MILL  
TAILINGS SITE AT DURANGO, COLORADO

Attached are URFO's comments on the Durango draft RAP, SCR and DSCR. The comments on surface water hydrology will be provided to you separately by Ted Johnson. In addition, the URFO staff reviewed the Durango preliminary Final EIS concentrating on assessing the adequacy of DOE's response to DWM's comments on the Draft EIS. No comments resulted from the review of the preliminary Final EIS for Durango.

Of significant importance is our concern that the Bodo Canyon site is a very poor site. We have serious doubts that DOE will be able to submit a design that we will find to be acceptable and meets the standards. These concerns are specifically addressed by Ted Johnson and the comments prepared by Pete Garcia regarding the suitability of soils for the radon barrier. In spite of these concerns, which have been conveyed to DOE numerous times, it appears that DOE is committed to the Bodo Canyon site and feels that somehow they will overcome the problems we have noted. We do not share this optimism. We recommend that DOE be notified again that we do not believe Bodo Canyon can be found acceptable by NRC.

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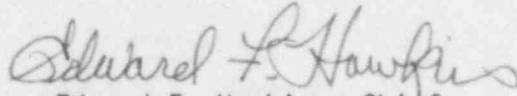
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If you have any questions, please contact Sandra L. Wastler of my staff at FTS 776-2811.

A handwritten signature in cursive script, appearing to read "Edward F. Hawkins".

Edward F. Hawkins, Chief  
Licensing Branch 1  
Uranium Recovery Field Office  
Region IV

Attachment: As stated

## NRC COMMENTS - DURANGO SITE

### Geology and Seismology

#### DSCR

1. Page 6, Section 2.5.1; The DSCR should provide the field reconnaissance, low sun reconnaissance and trenching data to support the conclusion that the "Ridges Basin Fault" dries out south of the site.
2. Page 8; The DSCR states that the zone of crustal extension bounding the Colorado Plateau appears to be growing and that the marginal zone of increased seismicity associated with it is increasing as well. Is the increase in seismicity an increase in areal extent of the zone of seismicity, an increase in the size of the earthquakes occurring in the zone, or both. How was this increase of seismicity taken in account in the determination of the MCE for the Durango site considering the 1000 year criteria. Similarly, is the maximum earthquake defined for the Dulce, New Mexico area sufficient considering the potentially increasing effect of the Rio Grande Rift into the Colorado Plateau over the next 1000 years.

### Geohydrology

#### DSCR

3. Page 37, Section 5.2; The second and third paragraphs of this section should be revised to be consistent with the last paragraph on page 26 of the DRAP (i.e., the DSCR should be updated to reflect the findings of the recent sampling program of the shallow Menefee and Cliff House aquifers).
4. Page 35, Section 5.1; The hydraulic conductivities presented here should have negative signs in the exponents. Additionally, in order to adequately evaluate the aquifer hydraulic properties derived by the TAC, a discussion should be provided detailing the types of tests performed and the aquifer analysis methods used to determine the hydraulic conductivities.

#### DRAP

5. It is evident from Sections 4.4 (page 30) and 4.5.2 (page 32) that the proposed remedial action for contaminated ground water underlying the processing site is natural flushing to the Animas River. Please provide a discussion of the time that will be required for contaminants to be flushed from the system.

Additionally, provide a discussion detailing what protective measures will be utilized during this period of time to prevent usage of the water.

6. Section 4.5.2 (page 32) indicates that the potential need for deep aquifer restoration beneath the raffinate ponds cannot be determined until additional water quality data become available. It is recommended that the final RAP contain a characterization of the ground-water contamination within the Menefee and Point Lookout formations together with a proposed remedial action plan. Proposed remedial action should take into consideration present and future use of the ground water, availability and characteristics of alternative water supplies, institutional controls on use, and the value of the resource evaluated against the cost of proposed remedial actions.
7. Page 53 of the DRAP indicates that the ground water systems underlying the Bodo Canyon alternative site are presently being utilized upgradient. It must therefore be assumed that at some time in the future, these systems could also be utilized at some point downgradient from the proposed disposal site. The goal of the DOE should be zero degradation of the Bodo Canyon ground-water regime. The worst case estimate for ground-water contamination at Bodo Canyon (pp. B-85 - B-89) is too conservative. Even concentrations that are 200% less than indicated in Column 3 of Table B-3-5 (p. B-88) would result in unacceptable concentrations of some hazardous constituents. The estimate should be revised taking into account the permeabilities and attenuative capacities of the clay liner and cover and the unsaturated subsurface materials.

#### Radon Barrier and Radiological Safety

##### DRAP

8. Page 51, Section 5.5.4, first paragraph, second to last sentence; The actual value for the radon barrier cover thickness must be supplied to the NRC for concurrence prior to cover construction (see related comment No. 2). In any event, the adverse effects of frost on the integrity of the clay cover should be addressed.
9. Page B-33, Section B.1.3.1, first paragraph; Quantification of the actual site parameters needed to accurately estimate the required radon barrier cover thickness must be supplied to the NRC and concurrence received prior to cover construction.

10. Page B-38 and Table B.1.6; The emanating fraction, as estimated for the contaminated material, appears to be low. For estimating purposes, a default value of 0.35 should be used.
11. Page B-44, Section(s) B.1.3.3. and B.1.3.5; Is the long term moisture content of the material obtained from Bodo Canyon the same for both materials (see related comment No. 1 on Bodo Canyon DSCR)? Please compare the long term moisture content to the equivalent bar water retention value.
12. Last paragraph of Section (b); Please clarify which radionuclide(s) would be analyzed for during a whole body count. Also, is it not necessary to conduct the baseline whole body counting of all employees prior to working in a controlled area. Those employees that exhibit high urinalysis values during remedial action could then be whole body counted upon employment termination and the results compared to the baseline previously determined. It would probably be most meaningful to whole body count for radium-226.

#### DSCR

13. Page 83, first full paragraph; Please provide the actual calculations performed to obtain the long term moisture contents as estimated via the conceptual procedures outlined in this paragraph. Please compare this estimate to the 15 bar water retention value.

#### Geotechnical

#### DRAP

14. Page 50; Table 6.5 of NUREG/CR-2642 indicates that a petrographic examination provides the better overall assessment of rock quality than standard rock durability tests such as the freeze-thaw test. The information provided by the petrographic examination, such as chemical composition and fracture density, is especially important when the long-term durability of the rock is being evaluated. The rock durability testing should therefore include a petrographic examination.
15. Page 63; The radiological survey plan indicates that excavation of contaminated soil underlying the existing site would continue until the EPA radium standard was met. While this is necessary, it should be noted that excavation depths may need to be determined based on chemical contamination (i.e., arsenic, etc.). The survey plan should be revised to state that an evaluation of the extent of chemical contamination will also be performed.



16. Page B-40; It is proposed to add lime to the onsite soils to be used for the radon barrier to attempt to compensate for serious deficiencies of the soil with regard to dispersivity and swell potential. The proposed approach raises several critical concerns which must be addressed. First, the longevity of the soil-lime matrix can remain effective for at least 200 years. It is hard to imagine the lime remaining effective for such a long time period due to dissolution. Infiltration of rainfall will occur and will in fact be increased due to the presence of the rock layer. Further, the onsite soils are expected to have a rather high residual moisture content which may affect the lime. Second, it is difficult to envision a mixing and quality assurance program which will assure that the required percentage of lime is consistently attained for all radon barrier material. This is extremely important as even small areas not meeting specifications could seriously impact the stability of the cover. These critical issues could result in a need to identify an alternative borrow source. This comment also appears to the DSCR, pages 80-82.