

November 4, 1996

Mr. Richard Sena, Acting Director
Environmental Restoration Division
Uranium Mill Tailings Remedial Action
Project
U.S. Department of Energy
2155 Louisiana NE, Suite 4000
Albuquerque, NM 87110

SUBJECT: REVIEW OF SUPPLEMENTAL STANDARDS APPLICATION FOR SLICK ROCK,
COLORADO, VICINITY PROPERTIES SR-006 AND 007

Dear Mr. Sena:

The U.S. Nuclear Regulatory Commission staff has completed its review of the Radiologic and Engineering Assessments (REAs) proposing the application of supplemental standards for Slick Rock Vicinity Properties SR-006 and 007 submitted to NRC on May 14, 1996. The REAs propose utilization of supplemental standards for areas totaling approximately 17 acres located along the east side of the Delores River, across from the Union Carbide Processing site.

Based on a review of the information provided by the U.S. Department of Energy, the NRC staff concurs in the REAs. A technical evaluation documenting the staff's review is enclosed.

If you have any questions concerning this letter or the enclosure, please contact the NRC Project Manager, Charlotte Abrams, at (301) 415-5808.

Sincerely,

/s/ Daniel M. Gillen For J. Holonich

Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: S. Hamp, DOE Alb
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TECHNICAL EVALUATION REPORT
RADIOLOGIC AND ENGINEERING ASSESSMENT
SLICK ROCK VICINITY PROPERTIES 006 AND 007

DATE: October 27, 1996

SITE: Slick Rock Properties 006 and 007

PROJECT MANAGER: Charlotte Abrams

TECHNICAL REVIEWER: Elaine Brummett

SUMMARY AND DESCRIPTION:

By a letter dated May 14, 1996, the U.S. Department of Energy (DOE) provided the Radiological Engineering Assessments (REAs) for Vicinity Properties (VPs) SR-006 and SR-007 for the Slick Rock, Colorado, Uranium Mill Tailings Remedial Action Project sites. Supplemental standards to leave tailings in place were proposed for both properties, and U. S. Nuclear Regulatory Commission concurrence was requested.

Property SR-006 is located north of the Union Carbide processing site, and SR-007 is located to the northeast. The combined proposed supplemental standard area of the two VPs totals 17 acres of alluvial deposit separated from the Union Carbide site by the Delores River. A steep cliff borders the east side of the 17-acre area making access difficult from that direction. Wind/water borne tailings have accumulated in the two VP areas which are located in the 100-year flood plain and are partially inundated each spring.

DOE's radiological explorations on VP SR-006 included 28 soil samples on the proposed supplemental standards area that ranged from 0.9 to 23 pCi/g Ra-226. Ground level gamma readings ranged from 14 to 31 uR/hr. On VP SR-007, 44 soil samples ranged from 1.6 to 39.2 pCi/g Ra-226 and gamma readings ranged from 9 to 38 uR/hr. Data indicate that the contamination is located primarily in the top 6 inches of soil and covers 39,500 square feet on SR-006 and 235,000 square feet on SR-007 (6.3 acres). There are no structures on these properties, nor are there expected to be in the foreseeable future.

DOE proposes application of supplemental standards for the 17 acres of VPs 006 and 007 based on criteria b and c of 40 CFR 192.21, because remedial action would cause excessive environmental harm (b), and the remediation cost is unreasonably high relative to benefits (c). DOE indicates that the area that would be impacted is riparian habitat and wetlands (grasslands, shrubs, and cottonwood trees). REAs for the two VP sites include the report, "Environmental Assessment of Remedial Action at the Slick Rock Uranium Mill Tailings Sites Slick Rock, Colorado" January 1995. The proposed supplemental standard areas are discussed in that attachment. In addition, DOE estimated that to gain access to the 17-acre site would cost about \$83,000.

DOE does propose to remove a small deposit on SR-006 that is adjacent to the former processing site, for a cost of \$4,000 (Option 1 and Alternative 2). The long-term health benefits of removing the estimated 4,848 cubic yards of

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tailings contamination in the 17 acres appear insignificant, because of the low Ra-226 levels and the remote location. DOE indicates that the land may be used occasionally by river rafters or campers, but it is not expected to be used for any other reason in the foreseeable future.

Soil Ra-226 values were not averaged over areas of 100 square meters for comparison to the 5 pCi/g above background standard. However, based on NRC staff calculations, the average Ra-226 values for the two deposits on the SR-006 supplemental standard area are 10.3 and 15.0 pCi/g (includes the background value of 1.3 pCi/g). The deposit on SR-007 averages 14.5 pCi/g Ra-226, but some 100 m² areas would be higher. In general, average Ra-226 levels are approximately two times the standard for surface soil.

DOE's health risk estimates in both REAs (Appendix B) are based on the potential gamma dose, and do not consider that the 100 mrem/year standard for public exposure is for total (external plus internal) dose. Given the assumption that a building or farm is unlikely to ever be built on the site, the staff concludes that DOE's risk model is acceptable. In addition, DOE used a ground-level exposure rate at the highest level, instead of the average rate at a height of one meter, to calculate the exposure time required to accumulate the annual public dose limit. The staff considers DOE's approach to be conservative.

CONCLUSION:

DOE provided data to indicate that the 17-acre VP sites meet supplemental standard criterion (b) because, notwithstanding reasonable measures to limit damage, remedial action would produce environmental harm that is clearly excessive compared to the health benefits to persons living on, or next to the site, now, or in the future. Since there are no identifiable significant health risks, any long-term environmental harm would be excessive.

Supplemental standard criterion (c) appears to have been met as the estimated cost of remedial action at the "vicinity" site is unreasonably high relative to the long-term benefits, and the residual radioactive materials do not pose a clear present or future hazard. The likelihood that buildings will be erected, or that people will spend long periods of time at such a vicinity site was considered by DOE and NRC in evaluating this hazard.

NRC concurs in the application of supplemental standards for VPs 006 and 007 based on the limited access to the site, unlikely risk of significant radiation exposure, and the high cost of remediation.