

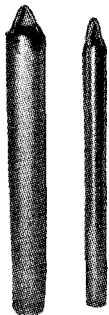
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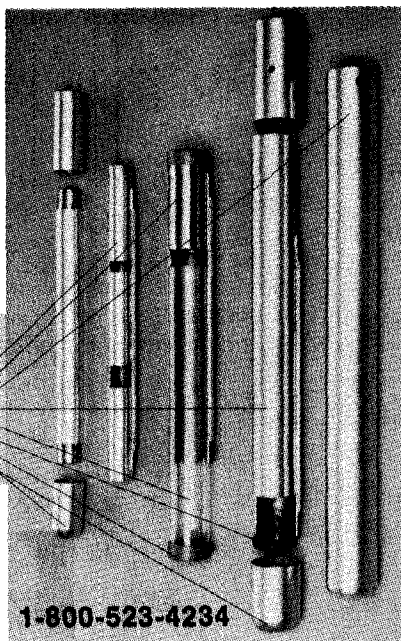
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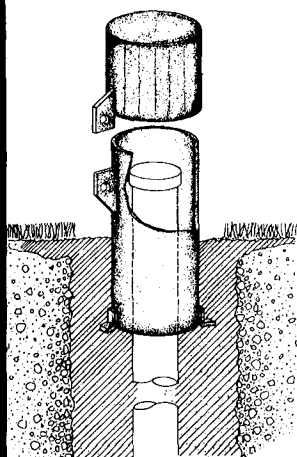


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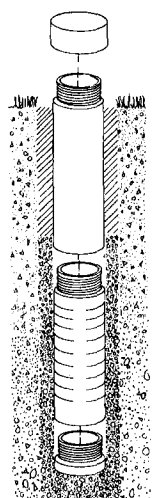
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Western Slope Disposal Site Sparks Concern

A recently permitted disposal site for radium-bearing waste near Uravan on Colorado's western slope has sparked concern that the waste will be buried in an aquifer recharge area and that fractured bedrock beneath the site increases the likelihood of ground water contamination.

But Umetco Minerals Corp. operator of the site, contends the geology is suitable for disposal of the wastes.

The disposal facility is located 350 feet above the San Miguel River, which flows within a quarter mile of the landfill. It is permitted to accept 200,000 cubic yards of low-level radium waste from a Superfund site in Denver.

Plans call for the waste to be disposed of in a lined cell and covered by a multilayered cap. Lysimeters will be installed under the liner to detect any changes in soil moisture; an indication of leakage from the site, according to Curt Sealy, an engineer with Umetco.

Western Colorado Congress (WCC), a non-profit organization concerned with the quality of life on the western slope, has filed appeals on the permits. WCC contends that the state permit was "fast-tracked" without proper research into the site's hydrogeology and other issues.

In a closing argument and legal memorandum submitted to the Radiation Control Division of the Colorado Department of Health (CDH), WCC said the Uravan site is a poor location because the fractured sandstone bedrock, (the Salt Wash member of the Morrison Formation), beneath the landfill provides pathways for migration of contaminants from the disposal facility. Colorado's own guidelines for siting this type of facility, according to WCC, "... state the preferred hydrogeologic unit ... would be relatively thick and impermeable shale."

In fact, there is shale beneath the Salt Wash Formation. Umetco and the CDH believe shale in the Summerville Formation will act as an aquitard to protect the Kayenta-Wingate Aquifer below it.

However, like the sandstone in the Salt Wash Formation, the shale is highly fractured. This fracturing "provides substantial secondary permeability through this formation," WCC said in its closing argument.

"The Summerville Formation has an unproven ability to act as an aquitard," said Tom Griepentrog, an engineer with Buckhorn Geotech in Montrose who worked with WCC in studying the site's hydrogeology. Griepentrog said the formation is at most 60 feet thick.

Perhaps of more immediate concern is the fact that, in the Uravan area, the Salt Wash Formation itself is an aquifer.

"Several wells in the vicinity produce large amounts of water from this formation," WCC noted.

Umetco's tests indicated the Salt Wash Formation is relatively dry beneath the dumpsite. But a well drilled by the company 900 feet north-east of the facility in the same formation hit ground water. Based on the slope of interbedded shale layers in the sandstone detailed in Umetco's exhibits, WCC determined that ground water from the site had migrated along fractures to the well. Therefore, WCC concluded, the formation directly beneath the disposal site is an aquifer recharge area.

According to Curt Sealy, Umetco proved the dumpsite is not a recharge area through computer modeling and direct testing of moisture content.

"We addressed this concern in our studies," Sealy said. "WCC's charge that the site is in an aquifer recharge area was made without thorough investigation."

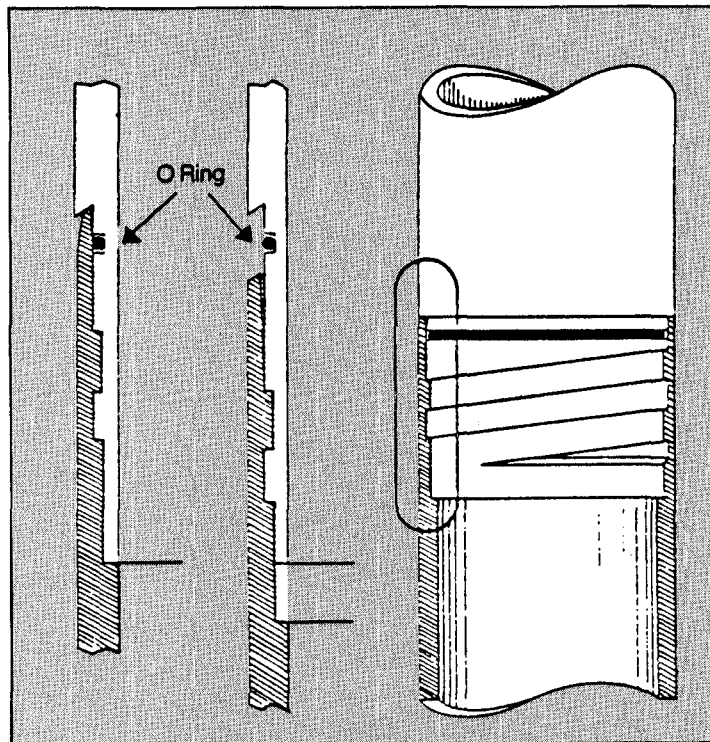
WCC blasted Umetco for not sinking additional wells to determine the size of the aquifer in the Salt Wash Formation or its proximity to the disposal site.

"We've done over \$4 million worth of studies in the past 10 years," said Jack Frost of Umetco. "We think we covered the hydrogeology thoroughly and the state of Colorado agreed with us."



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