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Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

JAN 5 1988

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Mr. Paul Lohaus
Acting Branch Chief
Nuclear Regulatory Commission
MS 5-E-4
Washington, DCD 20555

Dunkleman Plohaus
Fliegel

Dear Mr. Lohaus:

Please reference our letter dated October 9, 1987, DOE responses to NRC comments on the Slick Rock draft Remedial Action Plan. In our letter we had proposed to meet with the NRC and State of Colorado to discuss concerns of the possibility of community well (Well 2134F) becoming contaminated by the final stabilized pile or Dolores River alluvium. Since a meeting could not be coordinated, we have enclosed an evaluation for potential contamination of the well.

We believe that the low conductivity of the Entrada Sandstone makes migration of contaminates through the formation virtually impossible. Water sample analysis of the well indicates there is no contamination.

We hope the attached discussion of the contamination potential for the well alleviates NRC concerns. However, if the NRC retain any concerns in this matter, a meeting should be scheduled to further discuss a resolution to the issue.

If you have any questions or comments, please contact Michael Abrams at (505) 844-3941.

Sincerely,

W. John Arthur, III
Acting Project Manager
Uranium Mill Tailings Project Office

Enclosure

cc w/enclosure:
Maxine Dunkleman NRC-HQ
M. Jackson, JEG

SLICK ROCK WATER SUPPLY EVALUATION

The following analysis indicates groundwater contamination within the Dolores River alluvium will not affect the existing groundwater use within the vicinity of the Slick Rock UMTRA site. The only existing groundwater use in the site vicinity is supplied by well 634 (State of Colorado permit #2134-F), which supplies drinking water for the Slick Rock trailer camp and the gas sweetner plant. This well is completed in the Navajo Sandstone, the Entrada Sandstone-Carmel Formation, and the Summit Canyon Wash alluvium. Contaminated groundwater in the Dolores River alluvium will not reach well 634 because there is no hydraulic gradient from the Dolores River alluvium towards the well. Furthermore, the Summit Canyon Wash alluvium and the Navajo Sandstone are separated from the contaminated Dolores River alluvium by the low-hydraulic conductivity Entrada Sandstone-Carmel Formation.

General features of the Slick Rock UMTRA site are shown on Figure 1. Lithologic details and static groundwater elevations for well 634 and nearby monitor wells are shown in Table 1, and a cross section constructed through these wells is shown as Figure 2. The static groundwater elevation measured in well 688, a nearby well completed in the Navajo Sandstone, is higher than that in well 507, a nearby well completed in the Dolores River alluvium. Thus, except for a localized area of potentiometric depression near well 634 when it is pumping, no hydraulic potential exists for flow from the contaminated alluvium into the Navajo Sandstone. As determined from slug withdrawal tests performed on well 688, the Navajo Sandstone is relatively transmissive and the potentiometric surface recovers rapidly. Transient potentiometric effects caused by the pumping of well 634 probably do not transmit across the Entrada Sandstone-Carmel Formation aquitard.

The Summit Canyon Wash alluvium will not become contaminated because it is stratigraphically separated from the Dolores River alluvium by the low-hydraulic conductivity Entrada Sandstone-Carmel Formation. Laboratory measurements on core samples yield a vertical saturated hydraulic conductivity of 6.4 E-10 cm/sec for the Entrada Sandstone-Carmel Formation. In the unlikely event that any hydraulic gradient develops into the Entrada Sandstone-Carmel Formation, flow would be restricted by this relatively low conductivity.

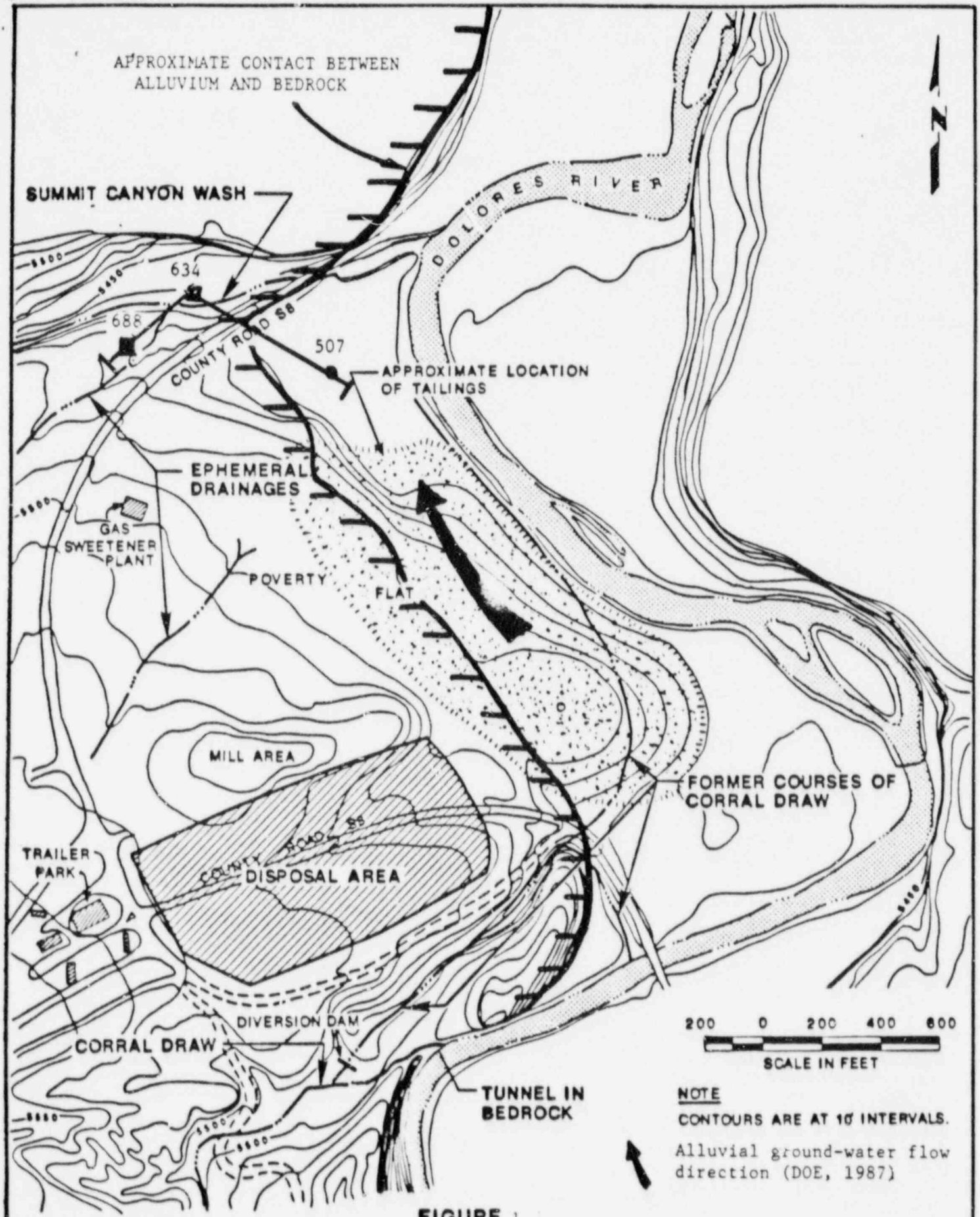

FIGURE 1.

GENERAL FEATURES OF THE SLICK ROCK, COLORADO, SITE

SLICK ROCK, COLORADO

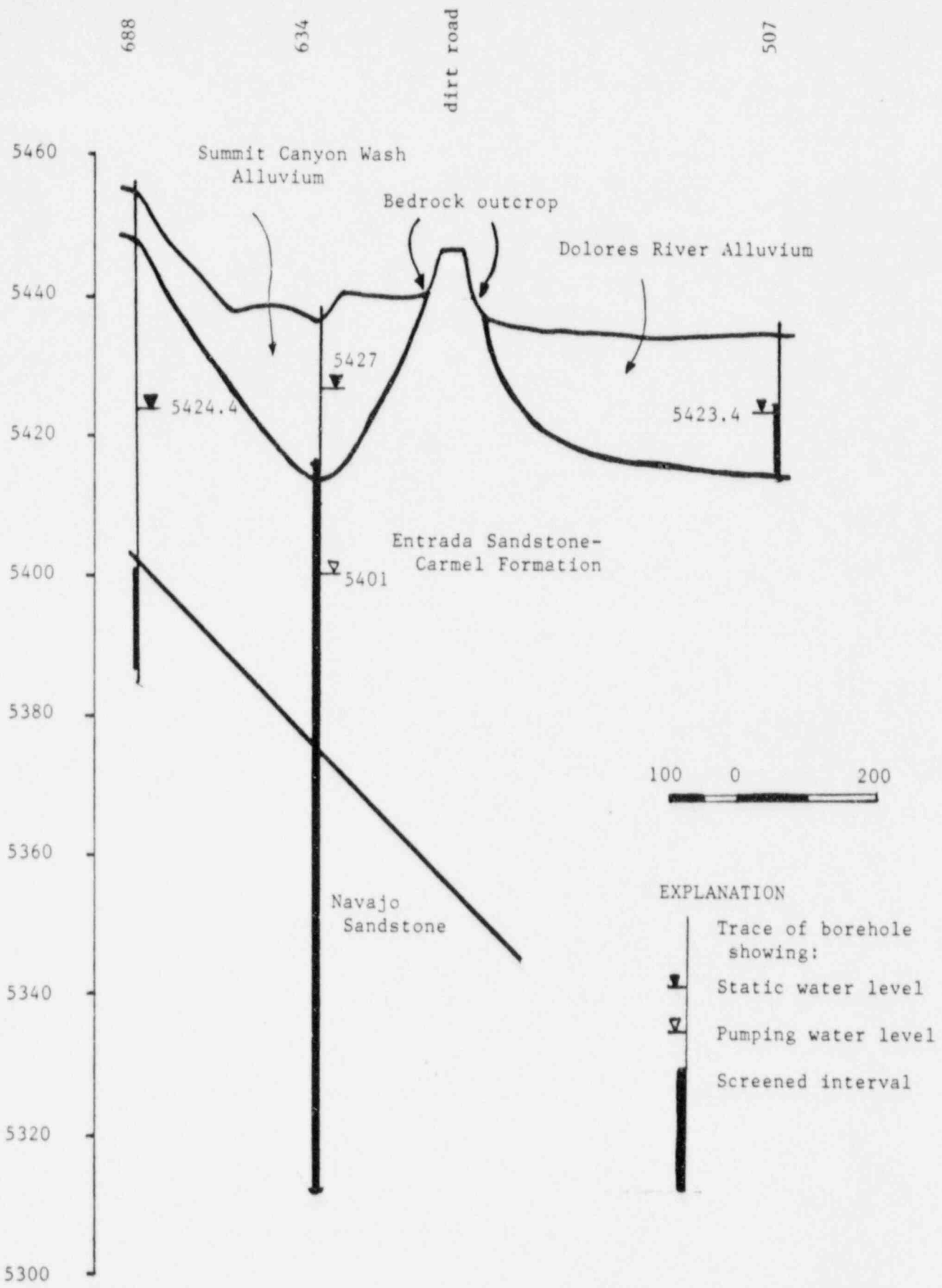

Figure 2. CROSS SECTION THROUGH WELLS 688, 634, and 507, SLICK ROCK, COLORADO SITE

TABLE 1. LITHOLOGIES ENCOUNTERED IN THE SUBSURFACE, SLICK ROCK TAILINGS SITE, COLORADO

Well ID	Depth, feet	Lithology
Surface elevation Groundwater elevation		
688		
5453.6	0-7	Silty clay, gravel and cobbles (Summit Canyon Wash Alluvium)
5424.4	7-53	Reddish-brown, silty sandstone (Entrada Sandstone-Carmel Formation)
	53-70	Tan to light gray sandstone (Navajo Sandstone)
634		
5436.0	0-23	Overburden (Summit Canyon Wash Alluvium)
5430.0	23-30	Sandstone (Entrada Sandstone)
	30-62	Sandstone (Carmel Formation)
	62-125	Sandstone (Navajo Sandstone)
507		
5431.3	0-19.5	Brown, very fine to medium grained sand, with medium to coarse gravel (Dolores River Alluvium)
5423.4	19.5-20	Red, fine to medium grained siltstone (Entrada Sandstone-Carmel Formation)