

Case Study



The information in this case study is reprinted from the American Cyanamid AM-9 technical manual. AM-9 was American Cyanamid's acrylamide grout product. Avanti's AV-100 Chemical Grout matches the chemical formulation, usage and performance of AM-9.

Title: Blocking Artesian Flows

Location: Round Butte Dam, Deschutes River, Oregon, U.S.A.

Owner: Portland General Electric Company

Engineer: Bechtel Corporation

Grouting Contractor: Continental Drilling Company

PROBLEM:

This 440-foot earth and rock-fill dam is located in a deep canyon along the Deschutes River in Oregon on a foundation of Pelton basalt, created by a series of lava flows. Water was flowing through the contacts between the individual lava flows, forming springs. Such springs had to be shut off beneath the dam and in the foundation area of the embankment core. Deschutes sediments were exposed on the dam abutments. All of these were too fine to accept cement grout, but some would accept low viscosity chemical grouts.

SOLUTION:

In anticipation of these problems, original construction plans called for the use of chemical grout to make the final seal.

APPLICATION:

After cement grout had cut off about 95% of the spring flows, AM-9 was injected to dry up remaining seepage. Four thousand gallons, from 20 to 100 gallons per hole, were injected into 150 holes ranging in depth from 10 to 25 feet. Use of dye tracers to determine exact reaction time held waste to less than two percent. Average chemical grouting time per hole was less than 15 minutes. The final seal was completed in six weeks.

RESULTS:

Leaks were successfully plugged, and contractors estimate that by saving at least a month's construction time, chemical grouting significantly reduced overall foundation preparation costs.