

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: Cutting Water Flow in Colliery Drift

Location: Chain Valley Colliery, Vales Point, N.S.W., Australia

Owner: J & A Brown and Aberman Seaham Collieries Ltd.

Grouting Contractor: Cement Linings Pty. Ltd.

PROBLEM:

In driving two drifts for this new project, several badly fissured water-bearing rock zones were intercepted. Upon completion, water at the rate of several thousand gallons per hour was entering the drifts from a subterranean water table. Water at 5,500 gallons per hour was entering the conveyor drift, mainly through large open fissures and also seeping through rather tightly closed fissures.

SOLUTION:

Conventional cement grouting methods were considered to be impractical since in the cases of large flows, grout would wash away and in the cases of seepage, grout would not penetrate. After due consideration, AM-9 Chemical Grout was selected on the strength of its past successes in similar situations.

APPLICATION:

Prior to dye testing, large open leaks were caulked to reduce the flow, and in some cases, double holes were drilled to divert a portion of it and simplify sealing procedures. Grouting procedures, in general, were as follows: when an effective flow-producing grout hole was drilled, a dye test was carried out by pumping colored water into the grout hole and timing its appearance at the leak. From such data, operators determined the required gel time, grout volume, and pumping rate. On completion of each dye test, grouting was carried out before additional dye tests were started.

RESULTS:

Sealing operations were considered totally successful. During one week's grouting, the water flow at a typical level was reduced from over 3,000 gallons per hour to 750 gallons per hour.