NATIONAL ENGINEERING HERITAGE LANDMARK · LAMBIE GORGE, COOMA

Rock Bolting Development Site

WHY THE RESEARCH BEGAN

A huge rock containing rock bolts fell from the roof of underground power station Tumut 1 during its construction in 1956. The rock bolts had not done their job and research was immediately undertaken by a team of engineers and scientists of the Snowy Mountains Hydro-electric Authority to find an alternative solution.

THREE YEARS OF INTENSIVE RESEARCH

The team developed a rock bolting design and technique to counteract the tendency of disturbed rock surrounding a tunnel to move, eliminating the need for other supports. The new practice enabled the exposed rock to support itself making tunnelling much safer, faster and cheaper than earlier methods. This effect was made permanent by cement grouting of the bolts in their holes. The "Snowy" practice rapidly spread worldwide and continues with little change today.

ENGINEERING HISTORY AT LAMBIE GORGE

From 1956 to 1962 rock bolting experiments were carried out at Lambie Gorge in conjunction with research undertaken in the tunnels and in nearby engineering science laboratories. Evidence of the experiments in this rock is of national engineering heritage significance. It is symbolic of the development of the pioneering rock bolting practice applied in the two underground hydro-power stations and tunnels of the Scheme.

More information is available at local Snowy Mountains Scheme exhibits.

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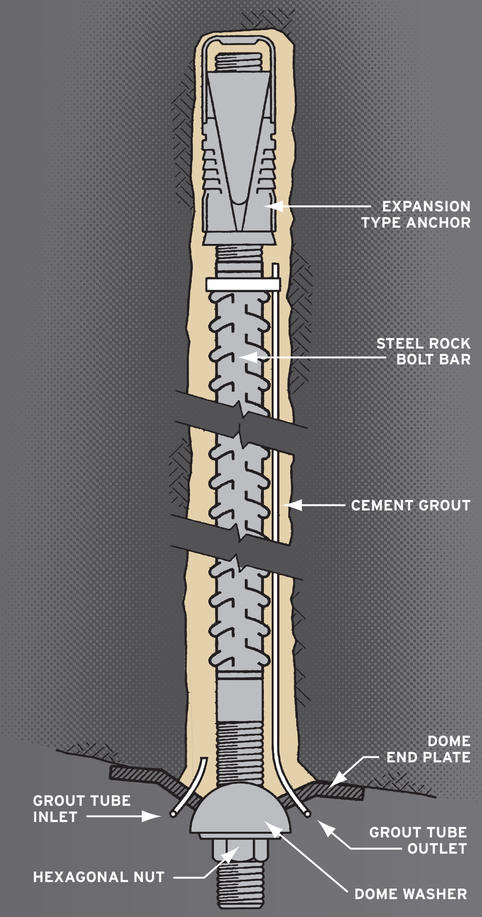
Land and Property Management Authority



ROCK BOLT
UP TO 4 METRES LONG

TUMUT 2 POWER STATION 1959

Cavern roof arch (approx 18m wide) studded with grouted rock bolts

TUNNEL ROCK BOLTING PROCEDURE

1. Drill rock bolt holes from "Jumbo" platform while drilling tunnel face.
2. Use grout truck to wash out drilled hole for rock bolt.
3. Insert rock bolts (designed for spacing and length) and tighten to expand the bottom anchor.
4. Force grout into holes to bond the rock bolt to the the rock surface.