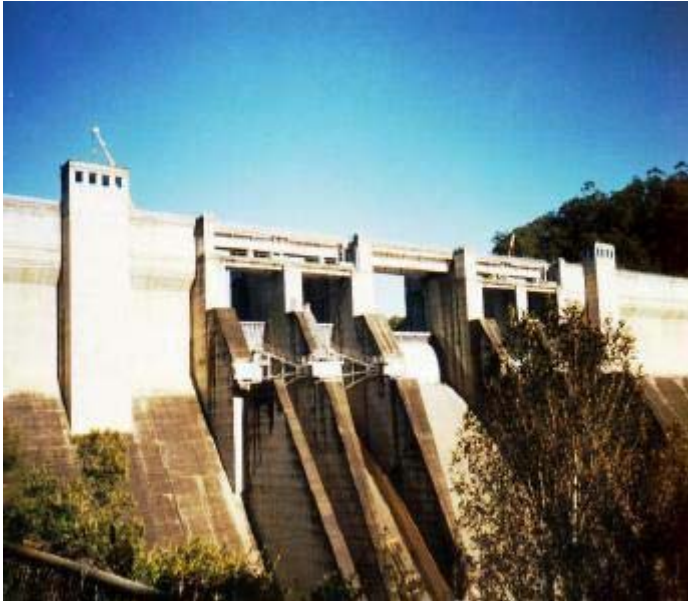


WARRAGAMBA DAM NSW

AUXILIARY SPILLWAY PROJECT GROUND ANCHORS AND FOUNDATION GROUTING



Client: Sydney Water Authority & AWT
Design Consultant: D.P.W.S. NSW & SMEC Australia

Contractor: Abigroup Contractors Pty Ltd
Specialist Contractor: Menard Bachy Pty Ltd

THE PROJECT

Since completion in 1960, hydrological studies showed that Warragamba Dam spillway could be significantly undersized by modern standards and required upgrading to cater for the probable maximum flood. Strengthening works to the existing dam were required to ensure the integrity of the whole structure, and a new 700m long, 190m wide auxiliary spillway adjacent to the existing dam wall has the largest fuse plug in Australia.

MENARD BACHY'S ROLE

Menard Bachy were awarded a sub-contract to carry out all of the anchoring and foundation grouting works. This involved, in conjunction with the designers and contractor, detailed design, fabrication, installation and stressing of 8 No. 42 strand and 5 No. 55 strand permanent re-stressable rock anchors in 450mm diameter holes to the existing training walls 20 metres above the existing dissipator floor and other works.

A purpose built gantry bolted to the training walls provided safe, flexible yet spectacular working conditions for the drilling and installation crews who descended the 20m high stair access daily.

80 No. 30m long permanent Macalloy Bar anchors and 530 No. 15m long dowel bars drilled onto the underlying rock provided supplementary tie down capacity to the existing dissipator floor against predicted uplift forces.

Macalloy Bars anchored into the existing valve house foundations assisted in the construction of 10m high walls to protect the pipework and valve house should there be any tailwater backflows in the existing spillway.

Drilling and foundation grouting of a 190m long 30 metre deep grout curtain beneath the new spillway together with water pressure monitoring preceded the installation, stressing and grouting of 32 No. 19 strand permanent restressable rock anchors through the new fuse plug walls. These anchors provided lateral stability to the walls in the unlikely event of fuse plug breaching. The 6 meter high spillway flip bucket has 14 No. 3,500Kn capacity, inclined, 14 strand permanent re-

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