

Summary Bio

John Black
Dam Engineering
Specialist



Nationality
New Zealand

Language
English



Key Qualifications

Bachelor of Engineering (Civil), University of Christchurch, 1969

Professional Affiliations

Member of Institution of Professional Engineers New Zealand
Member of NZ Society of Large Dams

SPECIALISATION

Dam Safety
Design of Dams
Design of Spillways and Outlets for Dams
Structural and Seismic Engineering
Concrete for Hydraulic Structures

SUMMARY BIO

John Black is a Civil Engineer and Dam Safety Specialist at Damwatch Services Ltd. John has over 30 years experience in the field of civil engineering, specialising in dams and hydraulic structures. After graduation in 1969 he joined the Ministry of Works and Development (MWD). He worked for four years on the design of concrete buildings and on the construction of roads and bridges before obtaining his engineering registration in 1974. He then moved to the project town of Twizel to work on the Upper Waitaki Power Development. John was employed as site engineer on the construction of large concrete hydraulic structures. These included the Pukaki canal inlet structure (for a 500 m³/s capacity canal) and a large culvert structure for passing the Twizel River beneath the canal. These structures were built using a large labour force on a shift work basis, and involved the placing of large continuous concrete pours.

After three years of construction work on the Upper Waitaki project, John in 1977 moved to the MWD Power Design office in Wellington. For about the next ten years he worked full time as design engineer on the 100m high Clyde concrete gravity dam. He was involved initially in the development and specification for the one million cubic metres of mass concrete required for the dam. This included temperature control measures to reduce thermal cracking in the dam. John then worked on the design of the diversion structure and on the hydraulic and structural design for the spillway and low-level outlet for the dam. He was responsible for the production of about 400 drawings and the technical specifications for the dam structure. This work also included the detailed design of the 100m high stainless-steel lined concrete wedge plug for the dam, used to seal an earthquake slip joint in the dam. John was also responsible for monitoring dam construction, dealing with design-related construction problems, and modifying design details as required to suit construction methods.

Since 1987 John has worked continuously on dam-related design and project management work. Employment has been with Works Consultancy Services, Opus International Consultants, and (since 2003) Damwatch Services. Work has included the upgrading of large disused diversion sluices at Pukaki, Whakamaru, Roxburgh, and Clyde dams so they may now be used as reliable high-head outlets for the dams. John also investigated the feasibility of constructing an 80m high dam on the lower Clutha River (conventional concrete, rockfill, and RCC dam options were examined). Other work has included the safety evaluation of about 20 major dams throughout New Zealand and of about 70 hydraulic structures owned by the Department of Land and Water Conservation in NSW Australia. John has performed detailed studies on the seismic stability of large concrete gravity dams and is familiar with current international practice for dynamic analyses of dams. He carried out the seismic assessment and designed the subsequent strengthening for 13m high vertical lift spillway gantries at Roxburgh and Maraetai. He is also experienced in dam surveillance engineering and the repair of concrete hydraulic structures (including repairs to concrete erosion on spillway chutes).