

CETHANA DAM

National Engineering Landmark

Location: On the Forth River, 7 km west of Gowrie Park.

Owner: Hydro Tasmania

The plaques are located on the dam crest wall.

History

Being sited in a narrow gorge, Cethana Dam was planned to be a concrete arch dam but, when an adverse jointing pattern was revealed in the abutments, a concrete-faced rockfill dam was adopted.

Cethana Dam

Completed by the Hydro-Electric Commission in 1971, this 110 m high dam showed the world that high concrete-faced rockfill dams could be designed and constructed with minimal leakage, in contrast to overseas experience. The compaction of rockfill in layers and the elimination of horizontal joints in the face slabs contributed to this excellent result. Many engineers from other countries inspected the dam, and its features were adopted internationally.

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The concrete face is the impervious element and it is connected to a concrete plinth on the foundations by a flexible watertight joint.

Dams of this type overseas had developed large leakages through or around the concrete face.

For Cethana Dam

- The rockfill was well-graded, placed in layers, wetted and compacted with vibrating rollers to reduce settlement.
- The rockfill was completed to crest level before placing of the concrete face began.
- Each concrete face slab was slipformed from bottom to crest level in one pour without stopping (the longest pours took 3 days).
- Waterstops between face slabs were embedded with great care. Two waterstops were used in the joint between the face and the plinth.

These and other techniques overcame all the problems with earlier dams of this type, and the leakage is very small.

Key contributors to the design were John Wilkins, Bill Mitchell and Michael Fitzpatrick, with advice from J Barry Cooke. Graeme Kennedy was in charge of construction.



Cethana Dam c.1975

Mersey Forth Power Development

The dam feeds a 100 MW Francis turbine in an underground power station, one of seven stations in the Development.

Heritage Dams Project

Cethana Dam was one of the 25 dams selected in a national survey to find those dams with the highest heritage values.