Lesotho

MUELA DAM

COORDINATES (degrees, minutes, seconds)

LATITUDE	LONGITUDE
28°45'41" S	28°27'20" E

LOCATION

This dam (tailpond) is situated on the Mohokane (Caledon) River, which is a tributary of the Senqu River. It is located in Lesotho in quaternary catchment D21A.

DESCRIPTION

Muela Dam is a double curvature concrete arch dam, built on sandstone. The dam has an ogee spillway and cascade stilling basin for energy dissipation. There is an inlet to the 38 km tunnel in the dam basin, through which water is delivered to South Africa. The tunnel begins at Muela Dam, continues into South Africa (beneath the Caledon River) and ends up in the Ash River. The tunnel is constructed through mudrocks of Karoo sediments, and is lined using precast segmental linings. The low-cover sections are steel lined to avoid rock hydrofracture.

The flow within the tunnel is used to calculate the royalties which South Africa pays to Lesotho. There is a magnetic flow meter to measure the flow (backed up by an ultrasonic flow meter) in an underground chamber at Ngoajane, Lesotho.

PURPOSE

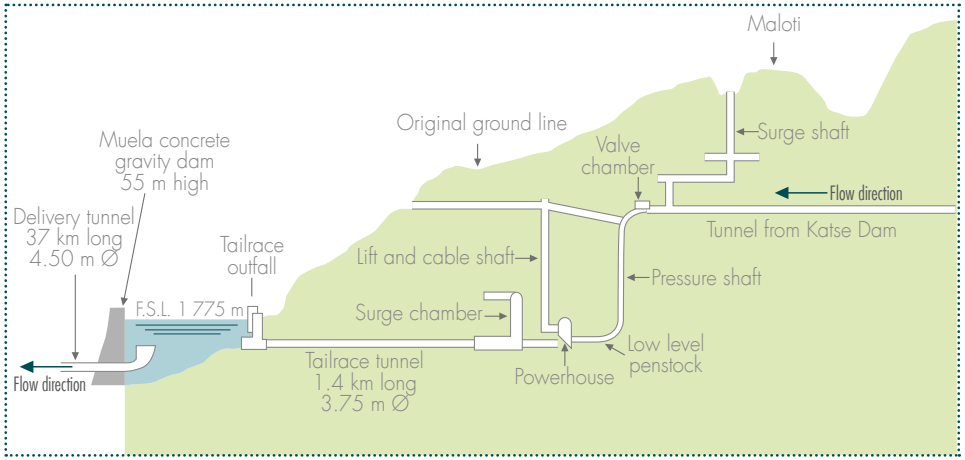
The sole purpose of the dam is to serve as a tailpond for the Muela underground hydroelectric power station that generates electricity to supply the needs of Lesotho. The plant capacity (at Phase 1) is 72 MW (three Francis vertical shaft turbines at 24 MW each).

Dam name	River	Quaternary catchment	FSC* (million m^3)	SA (km^2)	Owner	DWA code	Wall height (m)	Wall length (m)
Muela	Nqoe	D21A	6	Unknown	Lesotho	n/a	55	200

* Live full supply capacity

MUELA DAM

Year of completion	Demands/abstractions (million m^3/a)			1:50 yield (million m^3/a)	Maximum spillway capacity (m^3/s)
	Domestic	Irrigation	Other		
1998	Unknown	Unknown	Unknown	Unknown	584



Cross section of the Muela Dam (from map sourced at www.waterwise.co.za)