Fact sheet North Pine Dam

About North Pine Dam

North Pine Dam's primary function is to provide a safe drinking water supply to the people of north Brisbane and Moreton Bay. It also provides flood mitigation benefits.

The water from Lake Samsonvale, the reservoir formed by the dam, is stored before being treated to produce drinking water and follows the water journey of source, store and supply.

Source

North Pine Dam (Lake Samsonvale) is located on the North Pine River in the Moreton Bay Regional Council area.

Water supply

Treated water from the North Pine Dam is supplied mostly to Pine Rivers, Redcliffe, parts of Caboolture and Brisbane City Council areas.

At full supply, the waterline is 39.63 metres above sea level. At this height a 2,181 hectare lake is formed. Water is drawn from the dam through an intake tower built into the dam wall.

The intake tower is guarded by mesh screens which filter out rubbish, debris and other contaminants. Water is taken through valves (referred to as off-takes) at several depths.

This ensures that the best quality water can be taken from the reservoir on any given day.

The raw untreated water is supplied to the North Pine Water Treatment Plant, adjacent to the dam.

Key facts

Name	North Pine Dam (Lake Samsonvale)
Watercourse	North Pine River
Location	Petrie
Catchment area	348.0 square kilometres
Length of dam wall	580.0 metres
Year completed	1976
Type of construction	Concrete gravity dam with earthfill embankments on abutments
Spillway gates	5
Full supply capacity	191,459 megalitres

Dam infrastructure features

North Pine Dam is built across the North Pine River, five kilometres upstream from Petrie.

The dam is built on a solid rock foundation made watertight by injecting cement grout at a high pressure into boreholes in the rock.

The central section of the dam is a mass concrete structure.

This type of construction resists the thrust of the water by its weight alone. It has a central concrete spillway section on which five steel gates are installed.

To reduce costs, instead of using concrete, the shallow flanks of the dam wall were completed with rock and earth embankments.

Fact sheet North Pine Dam

In addition to the main dam, there are three earth-filled embankments built across low ridges to the south-west of the dam.These are known as 'saddle dams'. The largest of these is eight metres high and they total 1,000 metres in length.

In 1996, an aeration system was installed in the dam in an attempt to improve water quality through destratification of the lake. Destratification mixes the temperature-based layers of water in the lakes so that uniform temperatures are achieved over the depth of the lake.

The installation of this aeration system includes two 75 kilowatt compressors, each delivering 200 litres of air per second through two kilometres of submersed pipework.

Flood mitigation

All dams help mitigate flooding to some extent. During a flood event, North Pine Dam helps mitigate peak flood flows in the North Pine River.

At it's most basic level, flood mitigation is temporarily holding back flood water and releasing it at a slower rate, with the aim of minimising river levels downstream of the dam.

The ability of dams to mitigate a given flood event depends on both the volume and rate of inflows. Once the dam reaches its full supply level, water is discharged from the dam over the spillway, which is located in the central concrete section of the dam.

The spillway is closed by five steel gates but these are opened progressively during high rainfall events in such a way to minimise the effects of flooding downstream.

During a flood event, North Pine Dam is operated in accordance with the *North Pine Dam Manual of Operational Procedures for Flood Mitigation*.

For more information

To book a tour, or to speak to a member of our community education team, contact:

P (07) 3035 5500

E education@seqwater.com.au

W seqwater.com.au/education

F facebook.com/seqwater

T @seqwater

seqwater
WATER FOR LIFE

SOURCE STORE SUPPLY

Fact sheet North Pine Dam

Key features of three major dams

	Wivenhoe Dam	North Pine Dam	Hinze Dam
Catchment area (km^2)	5,554.0	348.0	207.0
Capacity – water supply (ML)	1,165,000	215,000	310,730
Capacity – flood storage (ML)	1,967,000	N/A	N/A
Type of structure and volume (m^3)	Embankment 4 million, Concrete 140,000	Embankment 275,000 Concrete 175,000	Embankment central core earth and rockfill
Year of completion	1985	1976	1976
Length of wall (m)	2300	1375	1850
Spillway gates (m)	Gated (5, 12.0 x 16.6)	Gated (5, 12.2 x 8.3)	Ungated
Sluice gates (m)	N/A	Yes – 5 (12.2m x 8.3)	N/A
Regulator valves	Yes – 2 (1.5 metres diameter)	Yes – 2 (1.4 metres diameter)	N/A
Average rainfall (mm/year)	940	1175	1354
Hydroelectric station	Yes – 4.5 megawatts	No	No
Major water supply customers	Brisbane, Ipswich, Logan, Gold Coast, Beaudesert, Esk, Gatton, Laidley, Kilcoy and Nanango	Brisbane, Redcliffe, Pine Rivers, Caboolture and other parts of the Moreton Bay Regional Council	Gold Coast