



THE GOLDEN PIPELINE
A NATIONAL TRUST PROJECT

MOUNT CHARLOTTE



Laying pipe at Mount Charlotte 1902

NTWA Forrest Album

Mount Charlotte Reservoir at Kalgoorlie marks the end of the Golden Pipeline and the Goldfields Water Supply Scheme (GWSS). GWSS was designed and built under the supervision of CY O'Connor between 1898 and 1903 to pump fresh water 560 kilometres east from the Darling Range (Mundaring Weir) near Perth through eight pump stations to the arid goldfields. The water was lifted 390 metres over that distance. Water was stored in Mount Charlotte Reservoir before being distributed to households and businesses in the Kalgoorlie region.

When gold was discovered at Fly Flat near Coolgardie in 1892 and then at Hannan's (later Kalgoorlie) in 1893, thousands flocked to the area. The north side of Mount Charlotte is traditionally regarded as the place where Paddy Hannan, Tom Flanagan and Dan Shea found their first gold in 1893.

'When we came to Mount Charlotte my mate and I decided to stop and prospect the country roundabout, as we had found two colours [specks] of gold. This was on June 10.'

From Golden Destiny by M&A Webb

Lack of fresh water on the goldfields was causing poor sanitation, diseases such as typhoid and many deaths. In 1896 Premier Sir John Forrest proposed the GWSS to Parliament. After long debate Parliament approved a loan of £2 500 000 (\$5 million), more than Western Australia's entire

annual budget, to build the scheme. The original pipeline was planned to finish at Coolgardie but, with the enormous population growth in the Kalgoorlie region, the pipeline was extended.

In 1899 Mount Charlotte was chosen as the site for the reservoir as it was the highest hill in the area at 419 metres above sea level and it would allow enough pressure for a water supply to the town. Mount Charlotte could be gravity fed from a reservoir at Bullabulling, the highest point of the GWSS which had water pumped up to it from No 8 Pump Station, Dedari.

Mount Charlotte Reservoir was dug into the top of the hill. Excavation was all done by pick and shovel with the earth being taken away by horses. In all, 8028 cubic metres of soil and rock were removed. Some of the stone from Mt Charlotte was used to build the Grand Hotel in Kalgoorlie. The reservoir has a capacity of 9 000 kilolitres.

On 24 January 1903, in 45°C heat, the scheme was officially opened by Sir John Forrest (at this time he was Minister for Defence in Australia's first Federal government). Tragically O'Connor had taken his own life on 10 March 1902, ten months before the opening.

In the early days of the reservoir one of the major concerns was what mining could be done near the tank. It was decided that no

mining should occur within 200 feet (61 metres) in any direction of the reservoir.

Every two years the tank was emptied and cleaned. Water would be diverted to another service tank for the time of cleaning. This usually took between half and a full day. Today the tank is cleaned by divers with underwater vacuums.

There are many stories of people sneaking in for a swim or animals drowning in the water at Mount Charlotte. There are rumours of a person drowning but there are no records of this. The roof was put on in the mid 1970s.

Today, Mount Charlotte Reservoir is used as a reserve tank. A new main holding tank is located on Mt Percy to the north. It was built in 1985. A new tank, Binduli Reservoir, is scheduled to open in 2007. It will hold 400 000 kilolitres.

FOR FURTHER INFORMATION
GO TO

GOLDEN PIPELINE WEBSITE:
www.goldenpipeline.com.au
WATER CORPORATION WEBSITE:
www.watercorporation.com.au

The National Trust promotes the value of heritage and uses its heritage assets to build a better future for Western Australia. The National Trust seeks to encourage and educate the community about the appreciation, enjoyment and use of its unique cultural and natural heritage, and to provide long-term social, economic and environmental benefit to all Western Australians.

FOR MORE INFORMATION
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WHO DESIGNED THE GWSS?	CY O'Connor
WHO OPENED THE SCHEME AND WHEN?	Sir John Forrest on 24 January 1903
HOW MUCH WATER IS HELD AT MT CHARLOTTE RESERVOIR?	9 000 kL
ARE THERE OTHER TANKS THAT HOLD KALGOORLIE/BOULDER'S WATER SUPPLY?	509 000 kL Five Kalgoorlie/Boulder tanks 400 000 kL Proposed Binduli Reservoir
WHAT AREA DOES THE TANK COVER?	1520 m ² (44 metres diameter)
HOW DEEP IS THE TANK?	6.2 metres
WHEN WAS THE TANK COVERED?	1975
HOW LONG DOES WATER TAKE TO REACH KALGOORLIE FROM MUNDARING WEIR?	Between 7 and 14 days dependent on demand (less in summer)
WHAT CHEMICALS ARE PUT INTO THE WATER?	Chlorine and fluoride
WHERE ARE THEY ADDED?	Mundaring & Kalgoorlie
ARE THE PIPES CLEANED?	Internal cleaning when concrete lining is replaced External cleaning when re-painting
WHAT PIPE UPGRADES HAVE BEEN MADE?	
1901 to 1903	Locking bar steel pipes (original pipes) laid underground, lengths joined by collars
1920s to present day	Locking bar steel pipes lined with concrete on inside to prevent internal corrosion
1930s	<ul style="list-style-type: none"> • due to leakage through external corrosion from saline and damp soil, pipeline re-laid above ground • approx 65 kms of pipe made from wooden staves laid to replace corroded sections (due to steel shortage prior to World War 2) • collars replaced by welding making the pipeline the first continuous above ground steel pipeline
1940s to 1980s	Wood stave and smaller diameter pipe sections are replaced
1990s to present day	Sintercoated (self adhesive, anti-corrosion coating) for high level of corrosion protection
present day	More than half of original locking bar pipeline still in use today
HOW MUCH DOES IT COST TO BRING A KILOLITRE OF WATER TO KALGOORLIE?	\$3.55 per kilolitre
HOW MANY PEOPLE USE PIPELINE WATER?	100 000 people in the Agricultural and Goldfields regions

KALGOORLIE/BOULDER 2001/02 TYPICAL HOUSEHOLD WATER USAGE:

CATEGORY	AV RESIDENTIAL (KILOLITRE/ANNUM)	PERCENTAGE RESIDENTIAL	TOTAL USAGE (KILOLITRE/ANNUM)
Residential Internal Uses	159	38.97%	1,532,006
Shower	50	12.26%	481,763
Bath	10	2.45%	96,353
Basin	9	2.21%	86,717
Toilet	30	7.35%	289,058
Laundry	40	9.80%	385,410
Kitchen	20	4.90%	192,705
Residential Outdoor Uses	241	59.07%	2,322,097
Irrigation	206	50.49%	1,984,863
Air Conditioners	20	4.90%	192,705
Pools	10	2.45%	96,353
Other	5	1.23%	48,176
Leakage and Losses	8	1.96%	77,082
TOTAL RESIDENTIAL	408	100.00%	3,931,185

KALGOORLIE/BOULDER 2001/02 WATER USE BY CATEGORY

Total Residential	47.06%	3,931,185
Total Commercial	8.99%	750,491
Total Vacant Land	0.16%	13,462
Total Mining	35.63%	2,975,710
Total Other	6.58%	549,433
Total Leakage and Unaccounted Losses	1.58%	131,993
TOTAL KALGOORLIE/BOULDER	100.00%	8,352,274