

8 WATER

Possibly the most defining factor of both the environment and human settlements in the Unincorporated Area has been water, either too much of it or more often, too little. Straddling the watershed on the edge of the arid heart of the continent, the drainage of the UA is primarily ephemeral watercourses channelling what little rain falls on the higher ranges towards basins far away. Drainage from the eastern side run towards the Darling River and its tributary the Paroo, in the Murray-Darling Basin, but in fact run-off from the ranges rarely reaches the rivers. Similarly on the west, run-off flows towards the lakes of the Frome sub-basin of the Lake Eyre Basin, but mainly sinks in the Mundi Mundi Plain. More effective is run-off to the smaller Bulloo-Bancannia Basin, where lakes occasionally receive water, and then provide habitat for migratory water-birds.

Aboriginal occupation of the country was determined by the presence of water. Permanent or semi-permanent water holes became the focus for living, meeting and ceremonies. The combination of water and appropriate rock shelters and gorge walls made possible the spectacular rock art of the region. Mutawintji is perhaps the best known; here rockholes, gorges, rock art, camp site complexes and stone quarries are conserved within Mutawintji Historical Site and National Park. Kokriega, also known as Burkes Cave, in the Scropes Ranges, repeats this pattern on a much smaller scale, with a permanent waterhole the focus of extensive campsites and rock art, with sandstone quarries nearby. Other major rock art sites at Euriowie and Sturts Meadows are similarly focussed on water sources. Further north, the dramatic stone ceremonial pathways at Pindera Downs are associated with the Bulloo, and other stone arrangements in that area are actually built on lake shores.

The records of the exploring parties of Charles Sturt (1844) and Burke and Wills (1860-1) give us the first European perspectives on water in the UA, with descriptions of luxuriant oases around waterholes in creek beds, balanced by accounts of their highly ephemeral nature.

This unreliability of water meant that early pastoralism was nomadic in nature. The first pastoralists in the 1860s, such as Abraham Wallace of Sturts Meadow had to keep their flocks on the move as springs and water dried up, even though they arrived at a very wet period, 1863-65, when, as Matilda Wallace related, at times they struggled through miles of flooded ground. Sydney Kidman's later network of stations through South Australia, western Queensland and western NSW, where stock were moved from station to station over huge distances to take advantage of water availability, was a logical development of this adaptation to the ephemeral nature of water.

The pastoral stations, where the country lent itself, built dams or earth ground tanks, dug wells or drilled bores. The first bore in NSW was put down at Kallara Station, near Tilpa on the Darling, in 1878. Both groundwater and artesian water was tapped in the UA, with the southern boundary of the Great Artesian Basin running roughly from Wilcannia across to White Cliffs and past Mt Arrowsmith to the SA border. Water was raised by whims, and later, windmills. Government bores were sunk at towns and public watering places along Travelling Stock Routes. Bores made access

to the country easier; the Milparinka-Wanaaring-Bourke Road – the Cut Line – follows a line of bores sunk by the government from 1884.

On a smaller scale, pastoral station homesteads and shearing quarters, hotels, railway sidings and railway accommodation, all needed a water supply. These all used a small water storage characteristic of the UA: stone ground tanks, rectangular or round, below or above ground, lined with concrete render. Many of these stone tanks are gems of the mason's craft.

Pastoralism could adapt to the unpredictable nature of water in the UA. For miners it was not so easy. The mineral ores were in the ranges, where there was least water. Water became a major issue for mines, and for the townships that developed around them. At one extreme, the lack of water as much as the limitations of the ore deposits made some fields especially transitory, for example the gold fields of the Milparinka Tibooburra area. Even the use of dry-blowing to separate the gold, also used on the arid western Australian goldfields, could not sustain them. Dams were constructed, as on Warratta Creek near Albert, but dams were useless without rainfall.

In the Broken Hill area, water was also a limiting factor on the many small mining towns. As the major deposits of the Line of Lode were exploited, the mines and town of Broken Hill demanded more and more water. Water sources further and further away, both in the UA and beyond, were needed to quench the town's and the mines' thirst. First the water holes at Stephens Creek were reserved and water carted to the town. Government tanks were sunk, usually following protests and pressure by the community. The Broken Hill mines used groundwater from the limestone beds underlying Acacia Creek, near Silverton. The steam trains of the Silverton and Tarrawingee Tramways also needed water; and the Silverton Tramway Company established its own dams along the tramway.

Government territorial disputes were fought over water, as was the case at Rat Hole Tank, west of Silverton on the Mundi Mundi Plain, where the Department of Mines refused to allow water be used for Broken Hill, resulting in major demonstrations where an effigy of the Minister for Mines was burnt. There were many competing proposals to solve the water problem, including rain-making experiments. In 1903 one operator undertook to make three inches of rain fall within three weeks, for a fee of \$5000, by firing cannon-balls and floating gas-filled balloons; an attempt, over Stephens Creek Reservoir was followed by heavy rain three weeks and one day later, and he was paid \$2500.

Severe water shortages led to public demands in Broken Hill for dams, first for Imperial Dam close to Broken Hill, then, most importantly at Stephens Creek and Umberumberka Creek. Two major reservoirs were built in the UA to supply Broken Hill: Stephens Creek, 1892, and Umberumberka, 1915. In both cases construction was slow, put off whenever rain fell, then back on when dry seasons led to more protests. In extreme situations, Broken Hill was supplied by water trains. In the 1892 and 1903 drought, the SA Railways and the Silverton Tramway carried water to Silverton and Broken Hill.

In 1926, when the NSW standard gauge line connected Broken Hill to Menindee, but not yet to the rest of the NSW system, water trains locomotives and tanks were sent

by sea from Sydney to Port Pirie, dismantled for carriage to Broken Hill on the narrow gauge lines, then reassembled on the broad gauge in order to carry water from the Darling to Broken Hill. The biggest water lift was from August 1944 to January 1946, when the NSW Railways operated water trains mostly at the rate of eight per day, carrying a total of 172,433,000 gallons from the river on 1,895 trips.



Figure 8.1 Silverton Tramway Co. water-train unloading, Courtesy BHP-Billiton Archives.

The last water trains were in 1952, just before the Menindee Lakes Storage Scheme on the Darling River allowed water to be piped to Broken Hill. Even this source can be unreliable as has been seen in the recent 2002-5 drought, when the Menindee Lakes dried. Work continues today on the storage scheme to improve efficiency of the water storage.

Heritage Places Listed Here

Rat Hole Tank
Stephens Creek Reservoir
Umberumberka Reservoir
Menindee-Broken Hill Pipeline

See also:

Explorers Campsites: Depot Glen, Burkes Cave
Wells: Mount Gipps: Clevedale slabbed well
Stone ground tanks:
 Pastoral: Poolamacca, Sturts Meadows, Mt Gipps.
 Town: Euriowie
 Railway: Limestone Siding
Earth ground tanks: Tibooburra Ground Tank
Towns: Acacia Dam

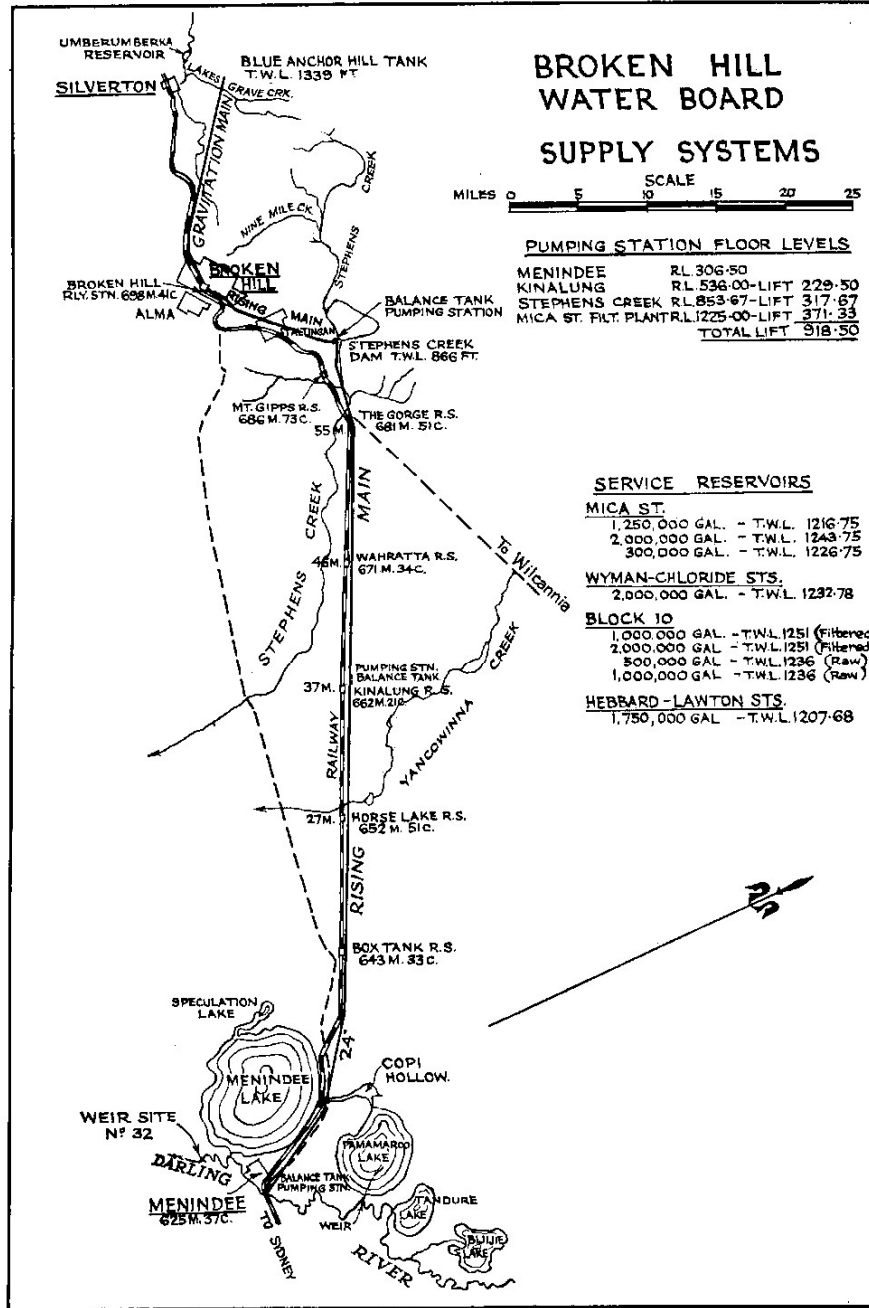


Figure 8.2 Broken Hill Water Board Supply systems, 1968. Most of the works are within the Unincorporated Area, except for the Menindee Lakes system, in Central Darling Shire, and the service reservoirs in Broken Hill. From Hardy (1968:94).

RAT HOLE TANK

County: Yancowinna:

Parish: Mundi Mundi

Location: On Mundi Mundi Plain, approx. 5km west of Silverton.

Name: Rat Hole is presumably derived from the native rats in the area. The name of the nearby mine and creek, Umberumberka, is also recorded as meaning native rat.

Description: Rat Hole Tank is an earth tank on the TSR that runs along the SA-NSW border south of Burns, then along the western scarp of the Barrier Ranges to Packsaddle. The tank was not visited during this study.

History:

The following account is from Hardy (1968):

The affair of the Rathole Tank illustrates the amount of feeling engendered by the water question at the time [1888]. It had been suggested as early as May that, since the dwindling supply in the Government tank at Broken Hill was now quite unfit for any domestic purpose, water could be railed by the Silverton Tramway Company from the Government Tank at Silverton. The old town, conscious of its own precarious water situation, and no doubt a trifle swayed by jealousy of its precocious rival, protested against the proposed saddling of its reservoir with the added burden of supplying Broken Hill. Thereupon Mr. Hanna, of the Public Works department, proceeded to meet the emergency by arranging to have water railed from the Rathole Tank, situated a few miles west of Silverton. This reservoir, mainly used to water travelling stock, was maintained by the Mines Department. Mr Hanna installed a pumping outfit, arranged for the necessary rail cartage, but was unable to put the scheme into operation until approval was given by the Mines Department, and this approval was not forthcoming. Chafing under the delay the Progress Committee despatched a telegram to the local Member, Hon. De Courcy Browne, in response to which Mr. Browne interviewed the Hon. Francis Abigail, Minister for Mines. That gentleman intimated that since the Mines Department, which controlled the tank, had not been consulted in the matter, he declined to give permission for its use.

The Rathole storm burst in a public meeting of 12,000 irate citizens in front of Broken Hill's Grand Hotel. The gathering was "very expressive of the low estimate at which the Hon. Francis Abigail is regarded by the lieges of Broken Hill." The following evening, 20th September, the bizarre cavalcade paraded down Argent Street. The central figure in the procession was a hearse-borne dummy representation of the Minister for Mines. One dray drawn by a team of donkeys carried a water cask marked "Empty". Insults were heaped on the effigy of the hapless Minister during its "last ride" to the gallows set up on the vacant allotment where the Post Office now stands. Here, after the handing, the kerosene-impregnated "corpse" was consigned to the flames. Fireworks secreted in its "internal economy" added to the liveliness of the occasion. "It was," said the Silver Age, "the most brilliant appearance that the Hon. Francis Abigail is ever likely to make in Broken Hill." Hardy 1968:8-9

By the end of November 1891 the position had become so acute that the Council, acting in conjunction with the new Member for Sturt, the Hon. J.H. Cann, began negotiations for the haulage of water by rail from South Australia. It was the beginning of seven months of anxieties and almost insuperable difficulties to keep even a semblance of normal life surviving in the stricken city. At first there was water in Mingary Tank, about 60 miles away, on which to draw. But by April this had given out and the longer haul from Hutton's Lagoon began. There was even talk of bringing

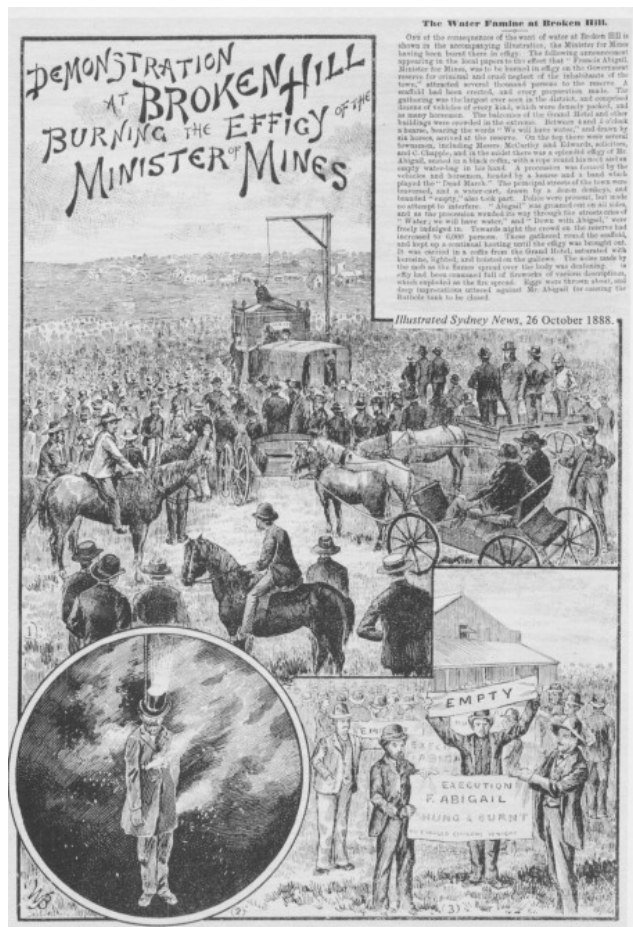
it from Dawson's Lagoon, a rail lift of 160 miles. Plans were made to utilise the Rathole Tank at Umberumberka, which necessitated the construction of a rail siding adjacent to the dam by the Silverton railway, as well as a three-quarters of a mile of pipeline with service tanks from Rathole to the railway. A small quantity was brought from this source towards the end of the famine, but the greater bulk of the haulage was from South Australia. Hardy 1968:31

Heritage Significance:

Rat Hole Tank, still a TSR watering point today, brings together a range of aspects of the water history of the Unincorporated Area, the demand for water, and the impact of Broken Hill's needs on the scarce water resources of the UA.

Historic Themes:

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Pastoral Utilities Government & Administration	Ground tank, TSR Water supply Political demonstration



MT DARLING SERVICE RESERVOIR

County: Yancowinna

Parish: Tara

Location: On top of Mt Darling, just south of the Barrier Highway about 14km northeast of Broken Hill, due south of Stephens Creek Reservoir.

Owner: On Dunsandel (or Rupee) Station.

Date: 1889

Description:

The Mt Darling service reservoir was commenced in 1888. It was intended to be 123 feet long, 66 feet broad and 12 feet deep, built of masonry and cement. It would have functioned as a gravitational head for water piped from Stephens Creek Gorge to Broken Hill. As a result of the commercial and political complexities of the various schemes for providing water to Broken Hill, it was abandoned when three-quarters complete. 'The *Silver Age* remarked on the difficulty involved in conveying the necessary sand and lime to the site. Evidence of these long forgotten labours is still to be seen by anyone with sufficient curiosity and energy to climb the rocky slope' (Hardy 1968:18).

History:

The following summary is based on Bobbie Hardy's 'Water Carts to Pipelines (1968:10-19)

By 1887 there were several private companies vying for political support for their schemes to provide water to Broken Hill. One of the smaller water syndicates was Joe Nolan's Stephens Creek Water Supply Company, floated in 1888. Nolan had a colourful life; he was born at the Henty whaling station, prospected at Mt Browne, and was a co-discoverer of Morris Blow, north of Day Dream, the greatest of the horned silver outcrops.

Nolan's erected a 7,000 gallon tank in Crystal Street Broken Hill, and piped underground water from mine shafts, which was only able to be used as stock water. They then piped water from Imperial Dam. The company was one of those with competing proposals to pipe water from Stephens Creek. This was based on using a large waterhole at Stephens Creek Gorge and building a gravitational main tank on top of Mt Darling. Broken Hill Council entered into an agreement with Nolan's to lay pipes and supply water at 6 pence per 100 gallons, with the option to purchase the works after eighteen months. Nolan's proceeded with construction of the tank on top of Mt Darling, and by July 1889 had completed three-quarters of it.

On 1 October 1889, the NSW Government passed an act to enable the Broken Hill and District Water Supply Company Ltd (the Stockdale company) to construct works at Lake Menindee to supply Broken Hill with water. Neither of the Stephens Creek companies, the Barrier Ranges and Nolan's, had managed to get legislative support for their projects. Faced with the Stockdale Act, they joined forces to create the Broken Hill Water Supply Company. Nolan's scheme was abandoned, and the new company decided to continue with the Syndicate's scheme for a weir on Stephens Creek. The service reservoir on Mt Darling was never completed.

Current State:

The tank was not visited during this study, but is clearly visible on air photographs.

Heritage Significance:

This unfinished tank on the top of a mountain has historic significance as a representation of the competing attempts to provide water to Broken Hill in the 19th century. As an earlier abandoned attempt to use water from Stephens Creek, it is complementary to the later Stephens Creek Reservoir.

Historic Themes:

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Utilities	Water supply

STEPHENS CREEK RESERVOIR

County: Yancowinna

Parish: Tara

Location: On Stephens Creek, about 15km northeast of Broken Hill.

Name: Stephens Creek was named by Charles Sturt in 1844 after the then Chief Justice of NSW, Sir Alfred Stephen.

Owner: Country Energy

Date: 1892

Photograph:



Description:

The Stephens Creek Reservoir, was one of the largest reservoirs in Australia when it was built in 1891. It is an earth embankment with the upstream face paved with 4 inch and 12 inch gravel stone-pitching, later cement grouted, to prevent scouring by wave action. The length of the main wall is 460 feet, its width at the base 240 feet. It stands 55 feet above the rock foundation level. When finished it stood 39 feet above the creek bed level, and in 1909 a further 3 feet of concrete coping. There were two concrete spillways, the northern one 165 feet long, and the southern one 215 feet,

rising 30 feet above the creek bed. The reservoir had a capacity of 3,941 million gallons and was fenced around the perimeter with 20 miles of rabbit-proof netting.

In metrics, the capacity of the reservoir is 20,300 megalitres, the area when full is 851 hectares, with a catchment area of 513 square kilometres. The pumps were originally steam driven and are now electric.

The pumphouse is a corrugated iron building, with sash multipane windows, a pitched iron roof and decorative barge boards. There are two buildings, the second is in the same style but appears to be younger in age.

History:

The following summary is based on Bobbie Hardy's 'Water Carts to Pipelines (1968), with some additional information from Kearns (1973).

Stephens Creek was an early source of water for Broken Hill. By 1885, the soakages in the creek were reserved and shallow wells sunk into the sand. Bullock drays carried water in ship's tanks to Broken Hill. In April 1888, the private Broken Hill Water Supply Syndicate prepared plans for a weir on the upper Gorge at Stephens Creek, the water collected there to be pumped through 20inch pipes to Broken Hill. The company reformed as the Barrier Ranges and Broken Hill Water Supply Syndicate, and provided details of their proposal to build two dams, one in the Gorge and the second higher up the creek in the 'plains' area.

At the same time, Joe Nolan's Stephens Creek Water Supply Company erected a tank in Crystal Street, pumped underground water from mine shafts and started digging a tank on top of Mt Darling as a gravitational feeder from a proposed weir at the rock holes lower down the Stephens Creek Gorge.

On 1 October 1889, the NSW Government passed an act to enable a third company, the Broken Hill and District Water Supply, lead by Harry Stockdale, to pipe water from the Menindee Lakes and the Darling River. The first two companies, with no legislative backing, amalgamated as the Broken Hill Water Supply Company and proposed to build a dam on the plains area of Stephens Creek, rather than in the gorge.

On 4 April 1890 the NSW premier, Sir Henry Parkes turned the first sod for the Stephens Creek project. Men were employed, tenders let for engines boiler and pumps, but the project came to a halt in June because the necessary water Supply Bill for the Stephens Creek company was shelved because of delaying tactics by the Darling River proponents. After agitation by the mines and the Broken Hill Council, concerned about the water supply problems in a period of drought, the bill was passed in December 1890 after a stormy debate which included charges of bribery and corruption. The Stephens Creek Reservoir was completed in November 1891, but no rain fell to give run-off until June 1892.

The water quality at Stephens Creek Reservoir was very poor and it was said that 'the aroma of those who bathed in it was often worse than that of the unwashed (Hardy 1969:56). There were problems from pollution of the catchment from piggeries in the area, mass picnics on the creek above the area, waste materials from the mines and the Broken Hill Council's night-soil depot. It was often dry especially in the drought

years of 1902-1903, when the Broken Hill steam trams ceased to run and there was threatened closure of the local breweries. Water had to be brought by train from South Australia. These problems resulted in pressure for another water storage to service Broken Hill. Eventually Umberumberka Reservoir was constructed after long delays, coming on line in 1915. When the pipeline from the Darling River was constructed in 1951-2, the water was stored in the Stephens Creek Reservoir removing its dependency on the local catchment.

Stephens Creek Reservoir today:

Only a brief visit was possible to the reservoir during this study. The area used to be a popular picnic spot for Broken Hill residents, and there is still an attractive small garden between the pumphouse and the reservoir, and a large car park. It was entirely deserted at the time of the visit, and it appears that visitors are not encouraged. The gates to the pumphouse area, which includes a memorial plaque on a stone pillar, were locked and there were multiple, even excessive, warning signs, presumably due to public liability concerns. It was difficult for someone unfamiliar with site to find the open garden. The carpark is barren and unwelcoming. Apart from one sign with some statistics there is no interpretation of the place. This area is important not only for the water history, but as one of the major campsites of Charles Sturt’s expedition in 1844; see Exploration for the single piece of Sturt interpretation accessible to the public.



Heritage Assessment

Stephens Creek Reservoir is of state heritage significance as the first major water supply to Broken Hill, its construction the end result of a long, complex and fascinating political process. It is one of the oldest reservoirs in NSW. The existing structures need a proper heritage assessment, beyond the scope of this study. The area has great educational and cultural tourism potential, but is currently undervalued and in fact unwelcoming.

Historic Themes:

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Utilities	Water supply

UMBERUMBERKA RESERVOIR

County: Yancowinna

Parish: Mundi Mundi

Location: The Umberumberka Reservoir is on Umberumberka Creek, north of Silverton, which drains the Barrier Range to the west to Mundi Mundi Plain.

Owner: Country Energy

Date: 1914

Description:

The dam at Umberumberka is of concrete with a crest of 680 feet long, 85 feet above the creek bed and 135 feet above the rock foundation, with a spillway 263 feet wide. There is a rising main (1.9miles) to a service reservoir on top of Blue Anchor Hill, then 16.8 miles of gravitation main to Broken Hill. Originally 18 inch woodstave piping was used on the sections of the gravitation main where the pressure was lower, with steel pipes for the lower part of the gravitation main and for the rising main.

History:

The following summary is based on Bobbie Hardy's 'Water Carts to Pipelines (1968), and Kearns' (1974)

In 1901 the NSW Parliamentary Standing Committee on Public Works was called upon to consider the expediency of constructing works at Umberumberka for providing a water supply to the towns of Broken Hill and Silverton. Through the drought years of 1902 and 1903, there was public agitation in Broken Hill for improved water supplies. Public 'indignation meetings' were held and the Government was repeatedly condemned for its lack of interest. Drought conditions had resulted in the use of impure water from dams, wells, and creek soakages to the extent that 47 cases of typhoid and enteric fever were reported by local doctors in one period of ten days. In March 1903 approval government approval was given for the Umberumberka Creek proposal, and the opening ceremony was performed on 14 April by local Member of Parliament, W.J. Ferguson.

Lengthy delays followed, partly due to good rains filling Stephens Creek Reservoir, though the water quality was poor. The Umberumberka Water Trust was formed in 1906, and the earlier plans were modified, shifting the weir 600 feet downstream to get a solid rock bottom; tenders were called and some work started. Private funding from the mining companies collapsed and the state government refused to make up the difference.

It was not until after a Commission of Enquiry in 1910 that legislation was finally passed. Work was commenced in February 1911, with a small township of 150 inhabitants established near the main weir, but there were delays due to flooding of the creek during the first year of construction, and the work was not completed until mid-1914. Then dry weather delayed the filling of the dam. On 14 October 1914, the water supply was turned on. By mid 1915, 77.2 miles of reticulation pipes had been laid in Broken Hill, plus 6 miles to the mines, and 2,250 houses had been connected. The total cost was 425,004 pounds. In 1916, the New South Wales Government took

over the water supply, and the chief of the Public Works Department became the administrative head of the Broken Hill Water Supply.

The original Wolff pumping plant was replaced by a Hathorn Davey pumping plant in 1920; there were water restriction imposed that year not because of shortage of water but through lack of coal due to a strike of transport workers. The new pumps enabled the mines as well as the town of Broken Hill to be supplied from Umberumberka.

In the flood of 1933 the water came over the main wall of the weir about 3 feet deep for the first time since the weir was built in 1914. It also came over 2 by-wash walls to the south of the main weir. The smaller by-wash was right above the village and a number of houses were washed away and others damaged. (Bill Bolton Smith 1988).

During World War 2, an attempt to blow up the main wall of the Umberumberka Reservoir with dynamite was foiled by the emergency watching service set up at the start of the war. In the 1950s water was pumped from Umberumberka to Radium Hill in SA, through a pipeline built by the SA Government.

Heritage Listing:

‘Umberumberka Reservoir, equipment and gardens’ was listed in the 1987 Silverton Heritage Study (Latona Masterman and Associates 1987) as item no. 10.9.3.

Heritage Items:

Perhaps because of its isolation, a remarkable collection of items relating to the history of construction of Umberumberka Reservoir is preserved at the site. Some of these deserve further research and documentation. Three generations of pumps survive, as well as the boilers for the steam pumps. There is a small photographic exhibition in the older pumphouse, and a display of pipes and other equipment in front of the pumphouses. On the road through the Reservoir grounds there are other items, including concrete mixers and concrete bins, and a brick chimney of a demolished house. The material has the potential to tell a fascinating story but is poorly interpreted mostly with very basic labels eg ‘boiler’. The following photographs and brief notes provide an introduction to the heritage items, but as with Stephens Creek, they merit a much fuller heritage assessment..

Umberumberka Dam
Pumphouses and engines
Steam boilers and coal bin
Concrete mixers and bins
Barrel hoops
Wooden pipes

Silverton Heritage Study:

Blue Anchor Tank

Umberumberka Construction Settlement:

There was a substantial settlement at Umberumberka, with a mapped street layout. There are building remains, historical records and a large collection of photographs.

Heritage Assessment

Umberumberka Reservoir is of state heritage significance as part of the long history of attempts to provide water to Broken Hill. The existing structures need a detailed heritage assessment, beyond the scope of this study. Compared with Stephens Creek, Umberumberka retains some unusual items relating to the construction phase, such as the concrete mixers, bins and barrel hoops. The area has great educational and cultural tourism potential, and many items are accessible to the visitor, but are poorly, or not interpreted.

Historic Themes:

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Utilities	Water supply

UMBERUMBERKA DAM



The Umberumberka Dam spans a fairly narrow valley. The plaque in the foreground commemorates George Sidney Mullen. It reads:

THIS TABLET
IS ERECTED TO THE MEMORY OF
GEORGE SIDNEY MULLEN, ASSIST ENGINEER,
DEPARTMENT OF PUBLIC WORKS, N.S.W.
UNDER WHOSE SUPERVISION THESE WORKS
FOR THE SUPPLY OF WATER TO BROKEN HILL
WERE CONSTRUCTED IN 1912-15 AND WHO WAS
ACCIDENTALLY DROWNED IN SYDNEY HARBOUR
IN THE LATTER YEAR.



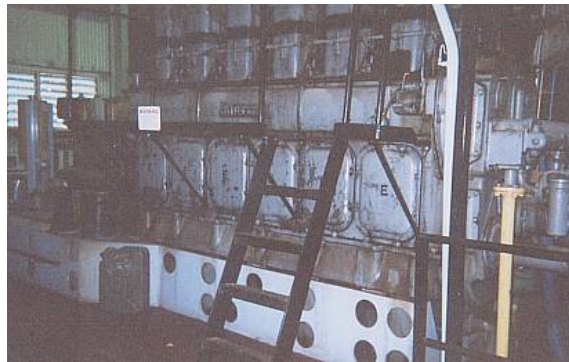
PUMPHOUSES AND ENGINES



There are two pumphouses at Umberumberka. The first one is at the right rear, behind the steam boilers. This houses two Hathorne Davey engines and pumps (no picture available), which fill the entire building (no photograph available).

The larger pumphouse holds two generations of diesel pumps.

There are three Enterprise diesel engines, 6 cylinder, 300 hp



These are no longer in use and have been replaced by two Caterpillar motors, 6 cylinder, 470 hp.



There is also an even smaller Southern Cross Pump in the older pumphouse, which was running when the site was visited. This was probably intended to demonstrate the size of pump that today can do the same work as the big Hathorne Davey pumps.

BOILERS AND COAL BINS

The steam pumps were driven by two coal-fired chain grate stoker Babcock & Willcox boilers, in a brick housing. These are well-preserved, as is the associated chimney flue and the huge coal bins. The latter are set into the side of the hill, so they could be filled from the top and emptied from the bottom.



From left to right, chimney, boilers and coal bins. The ‘chimney’ is an angled flue extending up the hill slope. It is not clear whether there provided enough updraft, or whether there was a taller chimney stack at the top of the hill.



Umberumberka coal bins, boilers and chimney flue at far left.

The cost of construction of a tramway from the Silverton line to the dam site was allowed for in the estimates, but no final decision was reached about building it. The problem was whether it would be more economical to construct the line for the purpose of hauling construction materials to the site, to be used subsequently as a means of conveying fuel to the pumping station, or to cart such material and fuel and save the cost of the line. The size of the old bins, built to receive coal for the original Wolff engines, and still existing as a curiosity beside the diesel-powered pumping plant at Umberumberka, suggests that a tramway would have reduced the problem of haulage by teams. But in a few short years the advent of the motor truck was to alter the picture completely and remove any economic justification for such short lines of railway. (Hardy 1968:61).

CONCRETE MIXERS AND BINS



This is a roadside display of concrete mixers (the metal objects on far right) and wooden concrete bins. The wet concrete was placed in these metal-reinforced wooden boxes, and swung on a wire flying fox across the dam face under construction. It is unclear whether these are in their original location; there is minimal information.

BARREL HOOPS



This is a pile of discarded barrel hoops. Cement for construction of the dam was transported in wooden casks, bound with metal hoops. Again, there is no information provided at this point.

WOODEN PIPES



These examples of the wire reinforced woodstave pipes that were used on parts of the pipeline between Umberumberka and Broken Hill.

Wood stave pipeline was listed in the 1987 Silverton Heritage Study (Latona Masterman and Associates 1987) as item no. 10.9.2. The location was given as ‘ runs from Umberumberka Reservoir via Blue Anchor Hill towards Broken Hill’.

It was described as:

Remains of the first pipeline supplying water from Umberumberka Reservoir to Broken Hill. A timber framed pipeline with concrete reinforcing. Now partially exposed and damaged.

BLUE ANCHOR TANK

Blue Anchor Tank is the service reservoir on the pipeline between Umberumberka Reservoir and Broken Hill, at the junction of the rising main from the dam and the gravitational main to Broken Hill. Originally designed to be concrete and divided into four compartments by two cross-walls (for cleaning purposes), it was in fact built on wrought iron in 1915.

Blue Anchor Tank was included in the 1987 Silverton Heritage Study (Latona Masterman and Associates 1987) as item no. 10.9.1.

MENINDEE-BROKEN HILL PIPELINE

County: Various

Parish: Various

Location: The Menindee-Broken Hill Pipeline runs from the Menindee Lakes Storage to Stephens Creek Reservoir. Most of the length of the pipeline runs through the Unincorporated Area, closely following the railway line from Menindee to Broken Hill.

Owner: Country Energy

Description:

The following description is from (Hardy 1968:128). It describes the pipeline at time of construction; the possibility of subsequent modifications has not been checked.

This augmentation supply was commenced in 1949 and was completed in 1952. It comprises a 24 inch diameter pipeline of 3/16 inch and ¼ inch plate steel, with a ½ inch thickness of cement lining. It is supported above ground on concrete chairs 15 ft. apart with an average height of 24 inches, and each seventeenth chair is so constructed as to form a side-thrust block. A control valve and 6 inch bypass is constructed in the line at 2-mile intervals along its length of 61 miles 3973.2 feet to the Stephens Creek Reservoir balance tank.

Stock crossings (thirty-five in all) have been provided where the line passes through various grazing properties; such crossings are constructed underground.

At these sections the pipe is treated externally with bituminous enamel to preserve the pipe from corrosive action of ground chemicals.

Where the pipeline passes under roads it is treated similarly to stock crossings. The numerous stock and road crossings are cathodically protected against corrosion.

Water moves from the pumping station at Menindee to the Kinalung Pumping station.

Kinalung Station has three high-lift pumping sets almost identical to those at Menindee.... The high lift pumps draw from the Kinalung tank and deliver through 25.5 miles of pipeline to Stephens Creek balance tank, also of one million gallons capacity.

History:

The following summary is based on Bobbie Hardy's 'Water Carts to Pipelines (1968).

The idea of piping water from the Darling River to Broken Hill has a long history. In 1889 The Broken Hill and District Water Supply Co. Ltd, led by Harry Stockdale, won government approval, through an Act of Parliament, to use the waters of Speculation and Menindee Lakes and the Darling River to supply Broken Hill. The company was required to begin construction within six months and complete the works in two years. The proposal involved eight pumping stations to convey water along a 60 mile pipeline between Lake Speculation and Broken Hill. (Lake Speculation is a small basin just west of Lake Menindee.)

In 1890 work was started on the Stephens Creek Reservoir by the rival company, the Broken Hill Water Supply Company, an amalgamation of two earlier companies

brought about by the success of the Stockdale Company in getting earlier government approval for the Darling proposal.

By the end of 1891, time had run out for the Stockdale proposal, with no work even started. Although the Stephens Creek proponents lobbied against it, the Stockdale group got an amendment to allow them to continue, and expanded the project to include a tramway along the whole 62 mile pipeline. Broken Hill residents however were strongly opposed to the project, more likely, to the proponents. They failed to make a required deposit of 10,000 pounds to guarantee the project, and then in May 1892 it rained, filling Stephens Creek Reservoir with 12-18 months supply of water. This was the end of the Stockdale scheme.

For the next 20 years, attention was focussed on the Umberumberka Dam proposal, which was came into service in 1915. Using the Darling River was considered economically impossible, especially after the 1921 Commission of Enquiry rejected the idea of locking the Darling (the Murray was locked between 1920-35). Water supply to Broken Hill remained a major problem, culminating in the 1940s drought, when Stephens Creek Reservoir was empty for over five years. Water was brought from the Darling by train from August 1944 to January 1946. At its peak, there were eight trains a day carrying thirteen tanks each.

In 1944 the Broken Hill Water Board, constituted in 1939, commissioned a report on water options, which considered pipelines from Wentworth, Avoca, on the lower Darling and Menindee. They adopted the Menindee proposal in 1945, and contracted the Public Works Department to construct it. Work was slow, hampered by post-war shortages and water trains were needed again in 1951. Finally water was pumped from Menindee to Stephens Creek for the first time on 11 June 1952.

Heritage Assessment:

Although the Menindee Lakes Scheme and the pipeline through the UA are much younger than Stephens Creek and Umberumberka Reservoirs, they are a significant part of the water history of Broken Hill and the UA.

No specific investigation was made of the pipeline during this study, and it is not known how much, if any, alteration there has been since 1952, nor whether there are some early historic components that need special consideration.

Historic Themes:

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Utilities	Water supply