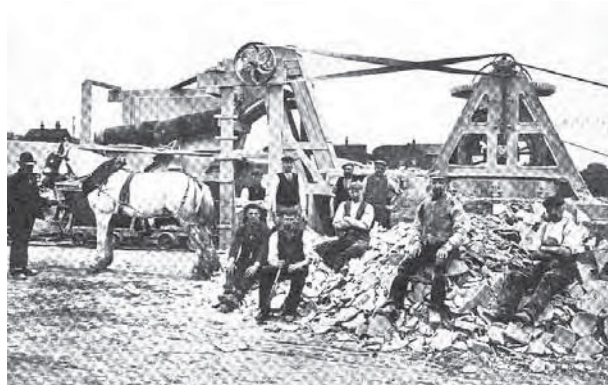


LEEDS (ENGLAND)

Leeds was one of the first towns in Britain to have a water supply piped to individual houses. Designed by the engineers George Sorocold and Henry Gilbert, it began operating in 1694, serving the wealthy parts of Leeds, then a town of 7,000. A water wheel built near Leeds Bridge, Lower Briggate, pumped water from the River Aire through 2.5 kilometres of 75 mm diameter lead pipes to a storage reservoir, from where the water entered the local distribution system.

By the early nineteenth century, Leeds Waterworks Company supplied around 2,000 houses with water. Most of Leeds continued to rely on wells, boreholes, water carriers and the River Aire. By 1830, however, pollution from wastewater had caused the Aire to become completely unsafe for drinking, and the death rate in Leeds rose from 20.7 per thousand in 1831 to 27.2 per thousand in 1841. At this point Leeds Waterworks Company finally stopped using the Aire as a source of drinking water. As Leeds' population continued to expand, the number of connected houses rose from 3,000 in 1842 to 22,732 in 1852, when the Company was municipalised, being bought by the Leeds Corporation for 250,000 pounds (Sellers 1997, 4-5).

Plate 60. Plant for crushing and screening filtering media showing “saggars” before crushing for wastewater treatment plant in Leeds around 1900–1905 (Photo: Raikes, 1908)



Sewerage

During the 1832 national cholera epidemic, 700 people died in Leeds over a 6 month period. A reference to a report by Robert Baker stated, “There was shown to be a clear link between the disease and poor drainage. The report was sent to the Home Secretary in London, but appears to have been promptly shelved.” (Sellers 1997, 2)

“Impelled by a growing movement for Improvement, the newly formed Borough Council promoted a series of local Acts of Parliament... [including] the Leeds Improvement Act, 1842,” (Sellers 1997, 6) which, among other things, empowered the Council to build a sewerage system. One of three rival sewerage schemes was approved by the Council in June 1846. Some delays arose from the need to gain permission from landowners. Further delays arose because the 1842 Act also imposed a borrowing limit of 100,000 pounds, and the Council had already borrowed 50,000 pounds for other projects. The financial difficulties (including increasing opposition to a sewerage tax, due to

an economic downturn) were only overcome after a further outbreak of cholera in October 1849, in which 2,000 died in Leeds. The first contracts for construction work were authorised in 1850, and the sewerage system was completed by 1855, at a total cost of 137,000 pounds (Sellers 1997, 6–7).

Between 1856 and 1865 average daily water consumption rose from 7,280 m³ to 20,000 m³, all of which returned to the River Aire without any form of treatment. In 1875 the Council's Streets Committee began work on the city's first wastewater treatment plant, using an experimental system designed to produce high-quality sludge for agricultural use. The market for this failed to materialise, and the system was changed to a more traditional one.

Table 34. Key long-term decisions on Leeds water and sewerage services

Year	Event	Factor	Outcome	Organisational change	Stakeholders
1694	First piped water supply				
1800	Around 2,000 houses supplied; most still rely on wells, boreholes and river water (River Aire)				
1832	Cholera outbreak in which 700 die	Lack of sewerage/clean water			
1832	Report on outbreak by Robert Baker is sent to Home Secretary	Shows clear link between disease and poor drainage	Report shelved	None	Robert Baker, Home Secretary
1832	Reform Bill grants Leeds two MPs			Two Leeds MPs	City
1835	The Municipal Reform Act allows the first elected council to take office			First elected council	City/MPs
1841	Leeds Waterworks Company discontinues use of Aire for drinking water	Pollution of the Aire			
1842	Leeds Improvement Act		Power to build sewerage scheme; £100,000 city debt limit		
1846 – 1849	Council decision to adopt sewerage scheme	Public health	Scheme delayed (debt limit prevents financing)		City
1849	National cholera outbreak in which 2,000 die in Leeds	Lack of sewerage/clean water			
1850	Sewerage system initiated		Sewerage system completed 1855		City

Year	Event	Factor	Outcome	Organisational change	Stakeholders
1852	Leeds Waterworks Company bought by Leeds Corporation (for ¼ million pounds)	Failure to expand water system sufficiently; need to develop sewerage		Municipalisation	City
1899	Compulsory for dwellings to be connected to sewers	Public health			City
1974	Responsibility for water and sewerage transferred to new Yorkshire Water Authority; agency agreement made with Leeds Council to run sewerage operations	Economies of scale; more effective integration through river-basin management		Nationalisation (and large merger)	National government, Yorkshire Water Authority, City
1983	Removal of Leeds Council representation on Yorkshire Water Authority			Removal of Leeds Council representation on Yorkshire Water Authority	National government
1989	Privatisation of Yorkshire Water	Conservative ideology; investment needs from EU directives		Stock market flotation of Yorkshire Water	National government
1997	Termination by Yorkshire Water of agency arrangement with Leeds Council for sewerage operations				Yorkshire Water
2000	Mutualisation proposal (rejected)	Various			Yorkshire Water, consumers/NGOs, Ofwat, government

Sources:
<http://www.leeds-uk.com/history.htm>
<http://www.leeds365.co.uk/briefhistory1.htm>

Recent history

A new, more modern wastewater treatment plant was constructed at Knostrop between 1910 and 1936. The late seventies saw investment in sewage treatment decline rapidly, and thus by 1983 Knostrop was in a state of disrepair with many sections of the plant deteriorating and effluent quality suffering. To bring it up to date a 24 million pounds upgrade was completed in November 2001. Since then Knostrop has met the effluent requirement of 20 mg/l BOD and 5 mg/l ammonia (Horan 2005).

In 1974 the one and a quarter century period of municipal ownership of the city's sewerage came to an end. Simultaneously with the implementation of Local Government Reorganisation, which created the Leeds Metropolitan District, the sewerage, sewage treatment and water supply functions were handed over, with all related assets,

to the newly formed Yorkshire Water Authority (YWA). The Water Act, 1973, provided for the Leeds City Council to maintain the sewerage system and design new works on the Water Authority's behalf, i.e. as an Agent of the YWA. This gave City Councillors some sort of influence on sewerage policy, but the strategic priorities were set by the YWA Board, on which Leeds Councillors had only indirect representation. In the early 1980s the Conservative Government completely reorganised the ruling bodies of the Regional Water Authorities and, removing all local authority representation, thus completed the severance of sewerage from municipal control. (Sellers 1997, 24)

On 31 December 1997 Yorkshire Water terminated sewerage outsourcing arrangements with all its sewerage agents, including Leeds City Council. Operational responsibilities for the sewerage system were taken 'in-house', with City Council staff engaged in this work transferred to Yorkshire Water. The Council was given the option of acting as consultants for designing new investment in sewerage, which it took up. (Sellers 1997, 27)



Plate 61. Lendel water tower in Leeds, England, dating back to the 14th century, in more recent years used as the headquarters of York Waterworks, purchased by Yorkshire Water in 1999 (Photo: Yorkshire Water)