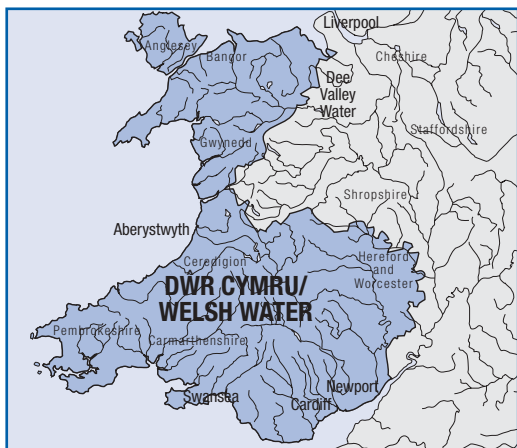


7 Dŵr Cymru Cyfyngedig

Overall Water Quality supplied by Dŵr Cymru Cyfyngedig in 2002

- A total of 179,513 tests were carried out on samples taken by Dŵr Cymru Cyfyngedig in 2002.
- Of these tests, 99.89% complied with the Regulations.



Company Information

Amount of Water Supplied:	1,000 MI/d
Consumers Supplied:	2.8 million
Areas of Supply:	Most of Wales and parts of Hereford and Worcester and Gloucestershire
Water Composition:	94% from rivers and reservoirs 6% from boreholes and aquifers
Treatment Works:	96
Service Reservoirs:	544
Km of Mains:	24,900
Water Supply Zones:	171

Water Quality at Treatment Works, in Service Reservoirs and in Water Supply Zones

To be wholesome, water must comply with the standards for the parameters set out in the Water Supply (Water Quality) Regulations 1989. In 2002, the Company carried out a total of 179,513 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.89% complied with the relevant water quality standards set down in the Regulations. A list of the parameters, the relevant standards and their significance can be found at the beginning of this section.

Water Quality leaving Treatment works

	2002	2001	2000
Number of water treatment works	96	104	103
COLIFORMS			
Total number of tests	10,595	11,114	12,973
– number containing coliforms	4	5	7
– % containing coliforms	0.04%	0.04%	0.05%
Treatment works with coliforms detected	4	5	6
– % of all works with coliforms detected	4.17%	4.81%	5.83%
FAECAL COLIFORMS			
Total number of tests	10,597	11,114	12,973
– number containing faecal coliforms	0	0	2
– % containing faecal coliforms	0.00%	0.00%	0.02%
Treatment works with faecal coliforms detected	0	0	2
– % of all works with faecal coliforms detected	0.00%	0.00%	1.94%

Failures of the coliform standard at four works in 2002 were considered trivial. There were no failures of the faecal coliform standard. Differences over the last three years in the number of treatment works, and in the number of tests carried out on samples from treatment works, in which coliforms or faecal coliforms were detected were not considered significant.

In 2002, 6,747 regulatory samples for *Cryptosporidium* were taken at 22 sites. Very low numbers of oocysts were detected in 260 samples from 16 sites. All results were well below the treatment standard and there were no reported outbreaks of cryptosporidiosis.

Water Quality in Service Reservoirs

	2002	2001	2000
Number of service reservoirs	544	553	552
COLIFORMS			
Total number of tests	27,932	28,441	29,412
– number containing coliforms	21	38	66
– % containing coliforms	0.08%	0.13%	0.22%
Service reservoirs with coliforms detected	17	34	56
Service reservoirs with coliforms detected in more than 5% of tests	1	1	2
– % of all service reservoirs with coliforms detected	0.18%	0.18%	0.36%
FAECAL COLIFORMS			
Total number of tests	27,931	28,437	29,410
– number containing faecal coliforms	3	7	12
– % containing faecal coliforms	0.01%	0.02%	0.04%
Service reservoirs with faecal coliforms detected	3	7	11
– % of all service reservoirs with faecal coliforms detected	0.55%	1.27%	1.99%

There was a failure of the coliform standard at one service reservoir. However, the Company has taken action to prevent the failure recurring. Failures of the faecal coliform standard at three service reservoirs were considered unlikely to recur following appropriate remedial action by the Company. There was a significant decrease in the last three years in the number of service reservoirs, and in the number of tests carried out on samples from service reservoirs, in which coliforms were detected. All other differences were not considered significant.

Water Quality in Water Supply Zones

The table below shows the data for the key parameters and any other parameters where there was a failure of the standard. All other parameters were fully compliant.

Parameter	Total number of tests	Tests not meeting the prescribed concentration or value		Number of failures covered by Undertakings	Number of zones not complying with the standards		
		No	%		2002	2001	2000
Coliforms	8,917	22	0.25	0	0	0	0
Faecal coliforms	8,915	3	0.03	0	3	3	3
Colour	800	0	0.00	0	0	0	0
Turbidity	1,186	2	0.17	2	2	3	0
Odour	1,074	2	0.19	0	2	3	1
Taste	1,023	1	0.10	0	1	0	1
Hydrogen ion	1,359	2	0.15	0	1	3	2
Nitrate	1,744	0	0.00	0	0	0	0
Nitrite	1,747	44	2.52	0	7	26	29
Aluminium	1,050	0	0.00	0	0	3	3
Iron	3,871	46	1.19	37	31	40	37
Manganese	1,313	2	0.15	1	2	7	8
Lead	841	3	0.36	0	3	10	3
PAH	886	35	3.95	24	18	21	24
Trihalomethanes	682	1	0.15	0	0	9	2
Total pesticides	2,291	1	<0.1	0	1	0	0
Atrazine	755	0	0.00	0	0	2	0
Isoproturon	490	0	0.00	0	0	3	0
MCPA	623	0	0.00	0	0	0	3
Mecoprop	623	1	0.16	0	1	1	0
Simazine	755	0	0.00	0	0	0	1
Other pesticides	26,243	0	0.00	0	0	0	0
Benzo 3.4 Pyrene	886	1	0.11	0	1	1	1
Oxidizability	327	1	0.31	0	1	0	0
Surfactants	314	0	0.00	0	0	0	1
All others	26,996	0	0.00	0	0	0	0
TOTAL	95,711	167	0.17%	64			

171 zones in 2002, 177 zones in 2001, 183 zones in 2000

The fifth column indicates the number of failures in zones already covered by legally binding undertakings given by the Company. These undertakings require remedial work to be carried out to ensure compliance with the individual standard.

The New Regulations

In 2002, the Company carried out monitoring for the six new parametric values set down in the new Water Supply (Water Quality) Regulations 2001*. These Regulations come into force on 25 December 2003. The results are shown in the table below.

Parameter	Total Number of tests	New standard	Tests not meeting the new standard
Benzene	1,993	1.0 µg/l	0
Bromate	1,997	10.0 µg/l	7
1,2 dichloroethane	1,966	3.0 µg/l	0
Nitrite (ex-water treatment works)	361	0.1 mg/l	0
<i>Clostridium perfringens</i>	1,022	0/100 ml	0
Enterococci	721	0/100 ml	0

Compliance data for 2002 has also been analysed against the revised standards and the results are shown in the following table.

Parameter	Total number of tests	Current Standard	Number of tests not meeting current standard	Revised Standard	Number of tests not meeting revised standard
Antimony	308	10.0 µg/l	0	5.0 µg/l	0
Arsenic	295	50.0 µg/l	0	10.0 µg/l	0
Boron	298	2.0 mg/l	0	1.0 mg/l	0
Copper	300	3.0 mg/l	0	2.0 mg/l	0
Lead	841	50.0 µg/l	3	25.0 µg/l ¹ 10.0 µg/l ²	5 10
Nickel	295	50.0 µg/l	0	20.0 µg/l	1
Nitrite (at consumers' taps)	1,747	0.1 mg/l	44	0.5 mg/l	0
PAH	886	0.2 µg/l	35	0.1 µg/l	0
Tetrachloroethene	428	30.0 µg/l	0	} 10.0 µg/l	0
Trichloroethene	428	10.0 µg/l	0		

Details of the new and revised standards, and the reasons for the revisions where applicable, can be found in chapter J "New Regulations and Associated Programmes of Work".

* Water Supply (Water Quality) Regulations 2000 in England.

- 1 From 25.12.03
- 2 From 25.12.13

Company Audit and Inspection

The Company was inspected or audited by the Inspectorate or its appointed consultants on a number of occasions during 2002. Where relevant, report summaries are available in the 'Business and Technical' section of the Inspectorate's web site under 'Audit and Inspection'.

Audit or Inspection	Date
Audit of regulatory <i>Cryptosporidium</i> monitoring sites	Various dates throughout the year
Audit of laboratory analysing for <i>Cryptosporidium</i>	January 2002
Audit of progress with regulatory programmes of work	March 2002
Audit of regulatory <i>Cryptosporidium</i> samplers	June 2002
Review of distribution system undertaking	September 2002
Audit of sampling arrangements	October 2002
Audit trails of 10 test results	October 2002
Inspection of one water treatment works and two service reservoirs	October 2002
Review of plumbosolvency treatment and control programmes of work for lead	November 2002
Audit of analytical requirements for nitrate and nitrate	November 2002
Audit of response to selected consumer complaints	November 2002
Inspection of <i>in situ</i> lining of mains at two sites	December 2002

A number of recommendations were made in respect of action required to avoid the risk of a breach of a regulatory duty. These recommendations were in relation to the audit trails, the distribution undertaking and plumbosolvency treatment for lead, sampling procedures, treatment works and service reservoirs, regulatory programmes of work and the *in situ* lining of mains.

Incidents

The Inspectorate regarded 12 of the events notified during 2002 by the Company as incidents. For further details on the classification of incidents, see chapter C "Events affecting Water Quality" in Part 3.

Eleven of the incidents have been assessed by the Inspectorate. Each was of short duration and Dŵr Cymru Cyfyngedig has taken appropriate remedial action. A number of recommendations were made regarding sampling and operational procedures.

During the 2002 reporting period, assessment was also completed for six incidents which occurred in 2001.

One incident assessment from 2002 remains under consideration.

Nature of incident	No. of incidents	Assessment completed	Area affected	Population potentially affected
Supply of discoloured water	11	Yes	Rhyl (January)	16,900
		Yes	Rhymney Valley (February)	4,300
		Yes	Llanelli (March)	50
		No	Cray District (Swansea)/ Bryncoch Area (Neath) (May)	13,000
		Yes	Ystrad Mynach (July)	7,500
		Yes	Rhymney Valley Area (July)	13,000
		Yes	Milford Haven (August)	4,000
		Yes	Cray District (Swansea)/ Bryncoch Area (Neath) (September)	3,000
		Yes	Abercanaid, near Merthyr Tydfil (October)	5,000
		Yes	Aberystwyth (November)	2,000
	Yes	Treherbert, Mid Rhondda (December)	27,000	
Failure of disinfection systems	1	Yes	Mountain Ash/Ynys Y Bwl (July)	1,500

Enforcement Action

The table below indicates areas where, in 2002, the Inspectorate considered taking enforcement action for regulatory breaches, and where an undertaking was submitted or where the Company took appropriate action.

Parameter/Area	Regulation breached	Location	Outcome
Iron	Reg 3(3)(c)	Abergele Zone	Undertaking received
Iron	Reg 3(3)(c)	Betws Y Coed	Pending

Undertakings and other Improvement Programmes

Water treatment works and service reservoirs

Three undertakings were due for completion during 2002. These were to install treatment at Cefni and Llanfairfechan to remove trihalomethanes and at Bontgoch to control the pH. The programmes were completed on schedule.

One Regulation 41 programme of work to meet the new and revised standards set down in the new Water Supply (Water Quality) Regulations 2001 was due for completion in 2002. This was to install treatment at Rhiwgoch to remove trihalomethanes. The programme was completed on schedule.

There were no statements of intent to reduce the risk of *Cryptosporidium* breaching the treatment standards due for completion during 2002.

One statement of intent for parameters other than *Cryptosporidium* were due for completion during 2002. The programme has been delayed due to delays in planning approval.

Distribution

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 410 km of mains have been renovated. The Company is required to renovate a further 3,719 km of mains by March 2010.

Lead

The Company has a Regulation 41 programme of work to meet the revised standard for lead set down in the new Water Supply (Water Quality) Regulations 2001, which will come into force on 25 December 2003. Progress with the delivery of the programme is monitored by the Inspectorate and has been satisfactory.