

CHAPTER 5 WATER QUALITY

Introduction

Water is a vital resource for a variety of uses including domestic and industrial consumption, recreation and power generation. Although water is a renewable resource, climate, evaporation, and the rate at which aquifers are replenished determine its availability and in a managed system, the availability and acceptability of new sites for water storage. The efficient use and conservation of water resources is, therefore, essential.

The quality of surface water depends upon characteristics such as geology and the impact of human activities. Inland waters should be clean and litter free both to achieve an acceptable standard for amenity use and to ensure that a diversity of flora and fauna can be supported.

Although the British climate is generally mild and damp, there are regions of the country mostly the south and east, where the margin between abstraction of water and available supplies is tight, particularly in dry years.

In Reading, the sources of water are underground and from the River Kennet.

Contents

- Legislation and Guidance
- The Role of the Environment Agency
- River Water Quality
- River Pollution Incidents
- Discharge Consents
- Water Abstractions
- Water Supply Zones
- Provision of Information
- Water Supply (Water Quality) Regulations
- Relaxations and Undertakings
- Water Quality in Reading
- Main Issues
- Key Contact(s)
- Reference Documents

Legislation and Guidance

Europe

The management of rivers and water quality in England and Wales is governed by a range of European Commission Directives, the most significant of which are as follows:

- **Dangerous Substances in Surface Waters (Directive 76/464/EEC)**

This provides a framework for controlling the discharge of dangerous substances to water.

- **Groundwater Directive (Directive 80/68/EEC)**

This protects underwater resources from a list of dangerous substances.

- **Surface Water Abstracted for Drinking Water (Directive 75/440/EEC)**
- **Fresh Water Fisheries (Directive 78/659/EEC)**
- **Urban Waste Water Treatment (Directive 91/271/EEC)**

This sets minimum standards for the collection, treatment and discharge of sewage.

- **Water Framework Directive**

The Water Framework Directive as proposed by the European Commission in 1997/98 establishes a management structure for future European water policy, with the following main objectives:

- expanding the scope of water protection to all waters, surface waters and groundwater;
- achieving good status for all waters by a certain deadline;
- water management based on river basins;
- combined approach of emission limit values and quality standards;
- getting the prices right: charges for water and waste water reflecting the true costs;
- getting the citizen involved more closely; and
- streamlining legislation.

World Health Organisation Drinking Water Guidelines

They have no legal status in the UK. However, a recent revision of the guidelines has increased pressure on the European Commission to review its drinking water directive. This review is currently being undertaken, although it is likely to be protracted. National legislation could change as a result.

UK

- **The Water Act 1989, later consolidated into the Water Resources Act 1991**

This provides the basis for water regulations in the UK and separates the regulatory functions of the water industry from the supply functions, now controlled by the water companies.

- **The Water Supply (Water Quality Regulations) 1989**

This sets standards for 57 parameters for drinking water. The Drinking Water Inspectorate (DWI) is responsible for ensuring that the water companies in England and Wales comply with their statutory duties to supply water, which meets all the appropriate standards.

- **The Control of Pollution (Silage, Slurry and Agricultural Fuel Oils) Regulations 1991**

This sets the minimum standards for the construction of new or improved farm waste stores.

- **Water Industry Act 1991**

This consolidates various enactments relating to the appointment of water and sewerage undertakers, conditions of appointment, supply of water and the provision of sewerage services. It also sets out the functions of the Director General of Water Services and the duties of local authorities with regard to the supply of wholesome and sufficient water.

The Role of the Environment Agency

Primary responsibility for the quality of surface and underground water rests with the Environment Agency. Its duties include: -

- protection and improvement of the water environment,
- enforcement of government standards,
- pollution monitoring and reduction,

- management of water resources,
- provision of effective flood defence,
- improvement and development of fisheries, and,
- nature conservation and recreation.

The Agency also has an advisory role. For example, it is consulted by planning authorities about major building or civil engineering developments that may effect the water environment. Its main link with government is by the Department of the Environment, Transport and the Regions (DETR), although it works closely with the Ministry of Agriculture, Fisheries and Food, the Drinking Water Inspectorate, the Office of Water Services and the Commission for the European Communities.

River Water Quality

River water quality is determined by use of the chemical grading contained in the General Quality Assessment Scheme (GQA). Eventually the scheme is intended to have chemical, biological, nutrient and aesthetic components, but currently only chemical and biological components have been fully implemented.

- **Chemical component**

The chemical component of the scheme grades rivers class A to F (representing very good to bad quality) on the basis of BOD (biological oxygen demand), ammonia and dissolved oxygen in the rivers. These three substances were selected as providing the best overall measure of basic chemical quality because they are indicators of the extent to which waters are affected by wastewater discharges (such as sewage effluent) and rural land run-off containing organic matter. These discharges are the major polluting loads in UK rivers.

- **Biological component**

Because the chemical component of the scheme does not address all types of possible pollution in rivers, the GQA scheme will also have a biological component. This is based on the monitoring of benthic macro-invertebrates (small creatures living on the riverbed). Each particular species thrives best under a narrow range of environmental conditions and so biological quality of a river will reflect the extent to which the river is affected by environmental stresses, including pollution from the whole range of chemicals.

		Dissolved Oxygen	BOD (ATU ¹)	Ammonia
Water Quality	Grade	(% saturation) 10-percentile	(mg/l) 90-percentile	(mgN/l) 90-percentile
Very Good	A	80	2.5	0.25
Good	B	70	4	0.6
Fairly Good	C	60	6	1.3
Fair	D	50	8	2.5
Poor	E	20	15	9.0
Bad	F ²	Where quality of river water does not meet requirements of grade E in respect of one or more substances-		

Notes:

BOD (ATU) refers to biological oxygen demand measured when nitrification in the sample is suppressed by adding allyl thio-urea

Standards:

BOD and ammonia standards require 90-percentile compliance. This means that the river should contain less than the specified levels of BOD and ammonia for at least 90% of the time

The dissolved oxygen standards require 10-percentile compliance. This means that the levels of dissolved oxygen should not fall below the standard for more than 10% of the time

Table 5.1: General Quality Assessment Scheme
Source: Environment Agency

The overall grade assigned to a river or canal reach is determined by the worst of all the indicators.

Under the General Quality Assessment Scheme (GCA) the rivers in the Reading area achieved the following classes for the period 1995-97.

River	Reach	Class
Kennet	Sulhampstead Stream to Foudry Brook	B
	Foudry Brook to Thames	C
Burghfield Brook	Burghfield Common to Foudry Brook	C
Clay Hill Brook	Sulhamstead Green to Burghfield Sewage Treatment Works	B
	Burghfield Sewage Treatment Works to Kennet	D
Thames	Whitchurch Sewage Treatment Works to The Cut	D
Holy Brook	Kennet to Kennet	B
Foudry Brook	Devils Highway to Stratfield Mortimer Sewage Treatment Works	B
	Stratfield Mortimer Sewage Treatment Works to Kennet	B

Table 5.2: General Water Quality Assessment in Reading 1995-97
Source: Environment Agency

River Pollution Incidents

The Environment Agency has defined pollution incident categories as follows:

Category 1

A major incident involving one or more of the following:

- potential or actual persistent effect on water quality or aquatic life,
- closure of potable water, industrial or agricultural abstraction necessary,
- extensive fish kill,
- excessive breaches of consent conditions,
- extensive remedial measures necessary, and,

- major effect on amenity value,

Category 2

A significant pollution which involves one or more of the following:

- notification to abstracters necessary,
- significant fish kill,
- measurable effect on invertebrate life,
- water unfit for stock,
- bed of watercourse contaminated, and,
- amenity value to the public, owners or users reduced by odour or appearance.

Category 3

- Minor, suspected or probable pollution which, on investigation, proves unlikely to be capable of substantiation or to have no notable effect.

The table below gives details of incidents affecting watercourses in Reading during 1997-98

Watercourse	Category	Type	Number
Burghfield Brook	4	Oil	1
Foudry Brook	3	General	1
	4	General	2
	4	Not known	2
	3	Oil	1
	4	Oil	1
	3	Sewage	1
	4	Sewage	5
Gos Brook	3	Not known	2
Holy Brook	3	General	5
	4	General	6
	3	Not known	1
	3	Oil	1
	4	Oil	1
	3	Sewage	1
	4	Sewage	1
Kennet	3	Agriculture	1
	4	Agriculture	1
	3	Chemical	3
	4	Chemical	1
	3	General	4
	4	General	4
	2	Not known	1
	3	Not known	1
	4	Not known	1
	3	Oil	8
	4	Oil	7
	3	Sewage	2
	4	Sewage	1
Portman Brook	4	Chemicals	1

	3	Oil	3
	4	Oil	1
Smallmead Ditch	3	Sewage	1
Thames	4	Agriculture	11
	3	Chemical	3
	4	General	1
	4	General	2
	4	Natural	2
	3	Not known	6
	4	Oil	6
	3	Oil	2
	4	Sewage	1
		Sewage	
Vastern Ditch	4	Oil	1

Table 5.3: Pollution Incidents in Reading 1997 –98
Source: Environment Agency

Discharge Consents

The Water Resources Act 1991 provides that discharges to the water environment require consent stipulating the amount and chemical composition of the effluent to be released. Consents granted by the Environment Agency are available for public inspection. Premises in Reading and nearby areas which have been granted discharge consents are listed below:

Location	Watercourse	Effluent Type	Discharge Type
Fobney Waterworks	River Kennet	Trade effluent	Waterworks effluent
Reading Sewage Works	Foudry Brook	Sewage effluent	Treated sewage effluent
Reading Sewage Works	Foudry Brook	Sewage effluent	Storm sewage effluent
Bennet Road	Holy Brook	Sewage effluent	Emergency and storm
Blakes Lock	Holy Brook	Sewage effluent	Emergency and storm
Caversham	River Thames	Sewage effluent	Emergency and storm
Circuit Lane	Webb Lane Stream	Sewage effluent	Emergency and storm
Portman Road	Webb Lane Stream	Sewage effluent	Emergency and storm
St Saviours	Holy Brook	Sewage effluent	Emergency and storm
Reading University	Whiteknights Stream	Sewage effluent	Emergency and storm
Upper Whitley	River Kennet	Sewage effluent	Emergency and storm
Cow Lane	Vastern Ditch	Sewage effluent	Emergency and storm
Cradock Road	River Kennet	Sewage effluent	Emergency and storm
Kidmore End	Berry Brook	Sewage effluent	Emergency and storm
Lower Whitley	Foudry Brook	Sewage effluent	Emergency and storm
Surley Row	River Thames	Sewage effluent	Emergency and storm
Vastern Road	Holy Brook	Sewage effluent	Emergency and storm
Fobney Waterworks Outfall 1	River Kennet and Canal	Trade effluent	Borehole groundwater
Fobney Waterworks Outfall 2	River Kennet	Trade effluent	Borehole groundwater
Fobney Waterworks Outfall 3	River Kennet	Trade effluent	Borehole groundwater
Calendars Richfield Avenue	Portman Brook	Other matter	Surface water
Chazey Bank The Warren	Bucks Stream	Sewage effluent	Treated sewage effluent
Reading Gasworks Site	River Kennet	Other matter	Surface water
Coley Park Farm	Holy Brook	Other matter	Surface water
Roebuck Ferry Cottage	River Thames	Sewage effluent	Treated sewage effluent
Abbots House Abbey Street	Holy Brook	Other matter	Surface water
Offices Caversham Road	River Thames	Other matter	Surface water
Hills Meadow Car Park	River Thames	Other matter	Surface water
RC Products Rose Kiln Lane	Alluvium	Sewage effluent	Treated sewage effluent
Rivermead Leisure Complex	Portman Brook	Other matter	Surface water
Smallmead Farm	Foudry Brook	Trade effluent	Mineral workings effluent
Riverside The Warren	River Thames	Sewage effluent	Treated sewage effluent
Berkshire Brewery	Smallmead Ditch	Sewage effluent	Treated sewage effluent
Berkshire Brewery	Three Mile Cross Stream	Trade effluent	Underground water
Tesco Kings Meadow	River Thames	Other matter	Surface water
Petrol Station Rose Kiln Lane	Coley Ditch	Trade effluent	Site drainage
Newlyn Cottage The Warren	Alluvium	Sewage effluent	Treated sewage effluent
Reading Golf Club Emmer Green	Plateau Gravels	Sewage effluent	Treated sewage effluent

Storage Yard 5/9 Berkeley Avenue	Alluvium	Sewage effluent	Treated sewage effluent
151A The Warren	Alluvium	Sewage effluent	Treated sewage effluent
151B The Warren	Alluvium	Sewage effluent	Treated sewage effluent
153 The Warren	River Thames	Sewage effluent	Treated sewage effluent
University of Reading Whiteknights	Whiteknights Lake	Trade effluent	Cooling water
Retail Development Rose Kiln Lane	Reading Beds	Trade effluent	Potable water
Reading Business Park	Foudry Brook	Trade effluent	Dewatering effluent
St Margarets Upper Warren Avenue	Upper Chalk	Sewage effluent	Treated sewage effluent
Smallmead Recycling Plant	Foudry Brook	Trade effluent	Surface water
Amersham Road Development	Redlands Gravel Pit	Trade effluent	Underground water
151 The Warren	River Thames	Sewage effluent	Treated sewage effluent
Business Park Smallmead Road	Foudry Brook	Trade effluent	Underground water
Fobney Fish Farm	River Kennet	Trade effluent	Fish farm effluent
Caversham Lock House	River Thames	Sewage effluent	Treated sewage effluent
Blakes Lock House	River Kennet	Sewage effluent	Treated sewage effluent
Berkshire Brewery	Three Mile Cross Stream	Trade effluent	Excess borehole water
100 The Warren	River Thames	Sewage effluent	Treated sewage effluent
Reading Bus Depot Outlet 1	Abattoir Ditch	Trade effluent	Site drainage
Reading Bus Depot Outlet 2	Abattoir Ditch	Trade effluent	Site drainage
Green Park Outlet A	Foudry Brook	Trade effluent	Dewatering water
Green Park Outlet B	Foudry Brook	Trade effluent	Dewatering water

Table 5.3: Discharge Consents in Reading
Source: Environment Agency

Water Abstractions

The Water Resources Act 1991 provides that water may only be abstracted by licence. The following table gives details of current abstraction licences in the Reading area together with licences for sites immediately adjacent to the Reading boundary. However, the actual amount abstracted (as shown in column 4) is usually well below the licensed volume. Sometimes it may only be 60% of the licensed volume.

Licence Holder	Purpose	Source	Annual abstraction
West Berks Health Authority	Hospital use	Underground strata	28,105,000 gallons
Clean Linen Services	Laundry use	Underground strata	40,000,000 gallons
Environment Agency	Fish farming	River Kennet	524,000,000 gallons
Wyncote Development	Groundwater remediation	Underground strata	315,360 cu metres
Reading Football Club	Groundwater remediation	Underground strata	1,897,344 cu metres
Scottish Courage Brewing	Brewing	Underground strata	3,000,000 cu metres
University of Reading	Cooling	Underground strata	250,000 gallons
West Berks Health Authority	Hospital use	Underground strata	136,875 cu metres
Cox and Wyman	Cooling	Underground strata	2,090,000 gallons
Cox and Wyman	Welfare	Underground strata	4,480,000 gallons
Manrose	Cooling	Underground strata	86,374 cu metres
Manrose	Welfare	Underground strata	4546 cu metres
Hillier	Industrial processes	Underground strata	1,470,000 gallons
Prudential Isis Club	Spray irrigation	Underground strata	275,000 gallons
Prudential Isis Club	Clubhouse facilities	Underground strata	325,000 gallons
Reading Borough Council	Agricultural	Underground strata	220,000 gallons
Reading Town Football Club	Clubhouse facilities	Underground strata	2496 cu metres
Reading Town Football Club	Spray irrigation	Underground strata	750 cu metres
University of Reading	General use	Underground strata	240,000 cu metres (until 31.12.03)
			68,200 cu metres (from 1.1.04)
Railtrack plc	Industrial processes	Underground strata	55,000,000 gallons
Thames Water Utilities	None	River Kennet and canal	5,856,000 gallons
Smallmead Farm	Agricultural	Underground strata	1,870,000 gallons
Smallmead Farm	Agricultural	Underground strata	1,500,000 gallons
Chazey Court Farm	Agricultural	Underground strata	2,273 cu metres
Reading Golf Club	Spray irrigation	Underground strata	31,823 cu metres

Table 5.4: Licensed Abstractions in Reading

Provision of Information

Water undertakers are required by law to establish, and make available to the public, records containing information about the population, treatment works, details of undertakings and relaxations and sample analysis for each water supply zone. Local authorities are also to be provided with a water quality report. This report must be published annually by the end of June and contain details on the whole of the preceding calendar year.

Additionally, a summary report including information across the whole catchment has to be sent to local authorities by the same date.

Thames Water Utilities provides a range of advisory leaflets and information about drinking water quality. These are available from Thames Water Utilities Customer Centre (Tel. 0645 200800).

Water Supply (Water Quality) Regulations

The Regulations list 57 drinking water quality indicators known as parameters. Each parameter is given a standard, the majority of which are maximum concentrations for each substance. These standards are known as Prescribed Concentrations or Values (PCVs). For example, one parameter relates to the presence of aluminium in drinking water and sets a prescribed value of 200 ug/litre, that is equivalent to 0.2 parts per million.

Some parameters, such as pesticides, require the analysis of more than one substance. Thus, a single sample may be examined for more than 80 different substances or properties.

The Regulations are applicable to water used for domestic purposes such as drinking, washing and cooking and for food production purposes. All water undertakers in England and Wales are bound by their requirements.

The Regulations also set frequencies and locations at which each parameter should be monitored based on the size of the population, the volume of water supplied and the water quality history of the zone. Some parameters, such as those that are found at very low concentrations in water supplies, are monitored at intervals as low as once a year, whereas other more important parameters are checked daily.

In the water supply zones, which are shown in Table 5.5, most parameters are analysed on samples taken from fixed customers' taps. For parameters whose concentration does not change while the water is going through the distribution system (e.g. pesticides), permission has been granted by the DETR for these parameters to be analysed on samples taken at the outlet of the treatment works. Samples are also taken at the outlets of every service reservoir.

Zone No	Zone name	Treatment Works	Volume supplied (megalitres/day)
0170	Goring and Sonning Common	Cleeve	56.3
0178	Tilehurst Village	Pangbourne	31.0
0179	Emmer Green	Playhatch	5.6
0189	Reading Whiteknights	Fobney	40.0
0192	Reading West	Fobney	40.0
		Pangbourne	31.0
0237	Spencers Wood and Whitley	Fobney	40.0
		Mortimer	2.9
0238	Reading Town South	Fobney	40.0
		Pangbourne	31.0
0239	Reading Town Central	Fobney	40.0
		Pangbourne	31.0

Figure 5.5: Water Supply Zones and Water Volume Supplied 1998
Source: Thames Water Utilities

Relaxations and Undertakings

A relaxation is an authorisation from the Secretary of State for the Environment that allows a water supplier to provide drinking water that may contravene the prescribed concentrations specified in the Regulations. Relaxations are only granted where the reason for the contravention is due to natural circumstances (i.e. due to the nature and structure of the ground or to exceptional meteorological conditions) or in the case of an emergency, where a relaxation may be granted to maintain supplies.

A relaxation cannot be granted for parameters within the toxic or microbiological categories of the legislation. There are no relaxations in force in Reading. If a water supply does not comply with the prescribed concentrations, and a relaxation is not appropriate, the Secretary of State can require water suppliers to submit improvement programmes. These are called undertakings

The Secretary of State will only accept these programmes of works if satisfied that any contraventions of standards, while works are undertaken, do not pose a risk to health. Time limits are agreed for the completion of the steps specified in the undertakings. Currently there are undertakings in place in some parts of the Thames Water area for improvements to the distribution system. The undertakings cover both iron and polyaromatic hydrocarbons.

The presence of a relaxation or an undertaking for a particular parameter does not automatically mean that the water quality is below standard. In many instances the standards are only occasionally exceeded and the undertakings are aimed at ensuring that future contraventions do not occur.

Water Quality in Reading 1998

The Schedule 4 Reports required by the Water Supply (Water Quality) Regulations 1989 made the following comments on water quality in the supply zones serving Reading for 1998.

(a) Goring and Sonning Common Water Supply Zone

Very good quality but total coliforms were detected on three occasions. As the standard for coliforms is assessed on a 95% compliance basis, there were no infringements of the standards in this zone.

(b) Tilehurst Village

Excellent quality with no infringements to report.

(c) Emmer Green

Excellent water quality with no infringements to report.

(d) Whiteknights

Excellent water quality with no infringements.

(e) Reading West

Excellent quality with no infringements to report.

(f) Spencers Wood and Winnersh

Very good quality but with three infringements. Total coliforms were detected on three occasions at consumers' premises.

(g) Reading Town South

Very good water quality but coliforms were detected on one occasion at a consumer's premises.

(h) Reading East

Very good quality but with two infringements. One pesticide (altrazine) result exceeded the 0.1ug/ml limit derived from the EC Drinking Water Directive but not the DETR health-based advisory value of 2ug/ml. Total coliforms were detected on one occasion at a consumers premises.

(i) Reading Town Central

Very good quality but with coliforms detected on one occasion at a consumer's premises.

The following comments are included on parameters of general interest

Aluminium

Aluminium is distributed widely in nature and is in all soils, plants and animal tissues. It is therefore present in air, food and water. The national standard for aluminium is 200ug/l, which is identical to the standard in the EC Directive. This limit is not related to health issues. Concentrations of aluminium above the level of the standard may only cause some discolouration of the water

Recently aluminium has been associated in the press with Alzheimer's Disease, or pre-senile dementia. There is no evidence of a causal relationship between concentrations in drinking water and the incidence of Alzheimer's Disease. Indeed, recent research appears to point to a possible genetic cause. Aluminium levels in drinking water are typically less than 5% of the dietary aluminium intake, for example a cup of tea may contain over twenty times more aluminium than the water from which it is made.

Aluminium compounds are used in water treatment works that supply parts of Oxfordshire and Wiltshire but these compounds are not used at any of the works that supply Reading. There were no contraventions of the prescribed concentrations for aluminium in Reading in 1997.

Fluoride

Low levels of fluoride, between 100-400ug/l occur naturally in most Thames Water Utilities supplies and are derived from the rock that the water comes into contact with underground. Concentrations of fluoride of around 1000ug/l are considered to be beneficial to health, reducing the incidence of tooth decay. High concentrations cause dental fluorosis or mottling of teeth.

Water undertakers may only put fluoride in supplies if requested to do so by the district health authority. Health authorities may only do this after carrying out a public consultation exercise.

Water supplied to parts of south Reading is derived from Mortimer. This source of supply is naturally high in concentrations of fluoride, as a result of the underlying strata but there were no contraventions of the PCV for fluoride in Reading.

Iron

Iron is an essential element in human nutrition. The prescribed value for iron is 200 ug/l and concentrations above this level may give rise to coloured water, which may stain laundry or give rise to an unpleasant taste. The standard is therefore set according to how the water should look rather than being based on any health effects.

Some supplies in Reading occasionally contravene the standard for iron. This is due to corrosion of the long lengths of iron mains in the distribution system and normally occurs after disturbance of the system following maintenance.

Lead

Lead is not normally present in water sources. It gets into drinking water because of the action of some waters on lead pipework. Lead was used prior to the 1970's to connect individual properties to the water main and for household plumbing.

In 1991, Thames Water carried out a survey throughout the region to assess the likelihood of levels of lead at customer's taps failing to meet the standards in the Regulations. Of the 10,000 samples analysed over 94% of samples contained lead at a concentration of less than one tenth of the standard which is 50 ug/l. During 1998, there were no contraventions for lead in Reading.

Nitrates

Nitrate is naturally occurring and is present in all soils, plant and animal tissue. It occurs in water largely as a result of surface water run-off and leaching from soils. This process may be increased by the use of nitrate based fertilisers for crop production.

There were no contraventions of the PCV for nitrate in Reading in 1998.

Pesticides

There are two prescribed concentrations in the Regulations for pesticides; 0.1 ug/l for individual substances and 0.5 ug/l for the sum of detected concentrations of individual pesticides. In the Thames region, as in other parts of the UK and throughout the rest of Europe, the levels of some pesticides in some supplies contravene the standard of 0.1 ug/l required by European legislation.

Although the standards are exceeded in some supplies, government medical advisors are satisfied that there is no risk to public health. The pesticide standard is not a health related limit and applies to all pesticides irrespective of the data on their relative safety.

Thames Water has reviewed and revised the number and type of pesticides approved for use on its own installations and is actively encouraging other users to do likewise. Thames Water has written to local authorities and British Rail asking them to re-examine their use of herbicides and, where possible, reduce applications or switch to alternatives that are less likely to find their way into water sources. This initiative has met with some success with many users modifying their use of pesticides as a direct result of interest in water quality.

Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons (PAHs) are present in the coal tar pitch, which was used up to the mid 1970s for lining water mains to reduce corrosion. Under some conditions these compounds can leach out of the linings into the water. Occasional contraventions of the PAH standard may occur throughout the Thames Water supply area. The World Health Organisation estimates that 99% of the daily intake of PAH is from food with drinking water accounting for approximately 0.1%.

Coliforms

Coliforms are a diverse group of bacteria, which occur naturally in soils and water. There are two standards in the regulations for coliforms - total coliforms and faecal coliforms. The prescribed concentration for both of these parameters is 0/100 ml (millilitres), which means coliforms should not be present in drinking water.

Water samples are taken from randomly selected homes in the town and fixed points. Analysis is also performed on samples taken regularly at the outlets of the water treatment works and at service reservoirs. The standard for the total coliforms parameter, in water supply zones and at service reservoirs, is judged on a 95% compliance basis. This means that if 95% of the samples taken in any one year meet the 0/100ml standard the supply is compliant with the Regulations. There were six infringements of the coliform PCV in the Reading water supply zones in 1998.

Occasional contraventions of the PCV for both parameters do occur from time to time and these can be attributed usually to poor plumbing or hygiene within premises.

Main Issues

- Water is a vital resource
- Its efficient use and conservation is essential
- Primary responsibility rests with the Environment Agency and Thames Water Utilities
- Water quality is determined by a chemical grading system and no river in the Borough meets the Grade A standard for the best quality
- Pollution incidents totalled 99 in 1998
- There are 59 current discharge consents
- There are 25 current licence holders for water abstractions in Reading
- There are 9 water supply zones wholly or partly within Reading
- Water supply is regularly monitored
- Water suppliers are required by law to make their records public
- There are 57 drinking water quality parameters
- There were 6 contraventions for coliforms in 1998

Key Contact

For further information, please contact Richard Marks on 0118 939 0314.

Reference Documents

1. NRA (1994): River Kennet Management Plan.
2. NRA (1994): Thames 21 - A Planning Perspective and a Sustainable Strategy for the Thames Region - A Consultation Draft.
3. Reading Borough Council (1992): Waterways Plan.

4. Royal Commission on Environmental Pollution (1992): Freshwater Quality.