

In the next issue

The arctic weather over Christmas 2010 saw Northern Ireland Water facing a crisis as many in the province were without water for days on end. Other water companies experienced similar problems on a smaller scale. How did these problems occur and how can they be prevented in the future?

BWC Business Issue 8

Blackwell Water Consultancy Ltd News

• IChemE Tyneside Member Network

The new member network has had its first two events and both have been successful and well attended. The first event was an "industrialists" evening where recent and not-so-recent graduates mingled with current undergraduates at Newcastle University. A number of presentations gave the students an idea of how the career of a chemical engineer can progress once university is left behind.

The second event was that time-honoured tradition, the brewery trip. We couldn't attend, unfortunately, but we understand that, ahem, drinking in a brewery was organised successfully.

The member network committee has also developed our timetable of events for 2011.

ISSUE

07

December 2010

BWC Business

New service chalks up second project

We launched our sister service, BWC Analysis, in September and we've just begun our second project under that banner. BWC Analysis offers detailed modelling and data analysis services that optimise production processes and reduce operating costs.

Visit www.bwcanalysis.co.uk, for more information about what the service includes.

Who we are

Blackwell Water Consultancy Ltd is based in north-east England but operates throughout the UK. We give advice to businesses in all parts of the UK economy about water supply and effluent treatment. Our sister service, BWC Analysis, offers consultancy about mathematical modelling and data analysis.

Our website has more information about what we do.



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Legislation, legislation, legislation

We've said many times before that water is the perfect use-and-forget resource. We turn on the tap when we want it and it runs down the drain when we're finished with it. But how can we be sure our water quality is regulated and that it's always as it should be? In this issue we try to lift the lid on the unseen world of water industry and water quality regulation.

We all do it. Even hardened employees of water companies. At some point we all refer to our supplier of tap water as the water board. Strictly speaking, water boards (or water authorities) haven't existed since the industry was privatised over 20 years ago. Water companies have a job that affects all of us: ensuring that every drop of water that comes out of our tap is clean and fit for consumption. All water companies are diligent about this and none will deliberately allow poor quality water into the system. It's clear though that independent checks are needed to make sure water quality is up to scratch. For the checks to be useful water quality standards are needed to ensure quality is consistent and there are no public health risks.

There's a world of regulation in the water industry that the general public never see but which affects us all.

The regulator for drinking water quality is the Drinking Water Inspectorate, usually known as the DWI (try www.dwi.gov.uk). The DWI has a number of roles but the one that has the most visible affect on us is that they scrutinise water quality (only in England and Wales, other regulators operate in Scotland and Northern Ireland as we'll see later. Their roles are similar to the DWI's). The DWI also publishes water quality data and it helps to commission research into drinking water-related topics. Much (although not all) of the legislation about drinking water quality in the UK is enforced by the DWI. They are, then, the independent assessor of the quality of our drinking water.

It may also surprise some readers that our water is not pure H₂O. Many chemical compounds and minerals are allowed in our drinking water but water quality legislation sets safe limits for all of these. The regulators also keep an eye on emerging contaminants for which legislation or limits don't yet exist. Ultra-pure water can be harmful to health if drunk in sufficient quantities. This, as the World Health Organisation states, can pose a health risk.

Try; http://www.who.int/water_sanitation_health/dwq/nutdemi_neralized.pdf for more information.

The legislative minefield

There are many, many pieces of water industry legislation and it's impossible to summarise here. Instead we highlight three of the most important.

Water Industry Act 1991

A titanic piece of legislation that effectively defines the UK water industry. It sets out regulations governing water supply, wastewater treatment, trade effluent, rights to supply and sewer connections, duties towards customers, rules for hosepipe bans and much more.

The Water Act 2003

Fast-forward 12 years and much has changed. The Water Act is passed to amend the 1991 Act (and others). It gives powers to reform the regulation of the industry, new regulations concerning land drainage and discharges of mine water and to amend the Reservoirs Act. Many of the changes are to help meet obligations towards the Water Framework Directive.

Water Framework Directive

A very wide-ranging EU directive. It covers the sustainable use of water, the prevention of water pollution from certain priority substances, the reduction of groundwater pollution and the general enhancement of the aquatic world. Much of the UK Water Act 2003 went towards meeting the terms of the WFD.



Regulating water quality part I

Transparency and diligence build trust in water quality

EU law sets out quality standards for what we call tap water (it doesn't apply to mineral water or medicinal products; other laws deal with those). It's a typically mind-numbingly dull piece of legal writing but, as with all of that ilk, it serves a real practical purpose.

The Directive specifies the allowable concentration of certain things in tap water. This may sound slightly distasteful in more ways than one. Shouldn't our tap water be completely pure? Not really, high-purity water is actually slightly acidic and corrosive and we wouldn't recommend you drink it if you can get it. Tap water contains very small amounts of minerals and other compounds that are harmless to health in the concentrations the Directive specifies.

The Directive sets out what our water companies need to monitor in our drinking water and how much of it there should be. The DWI's job is to monitor how well companies perform against these standards.

What's allowable?

Tap water should not contain any bacteria or other microbiological organism that can be harmful to health. This includes species such as E.coli and enterococci. Other compounds are allowable but in minute amounts. Why? Removing every scrap of mineral is expensive and impractical and ultra-pure water should not really be consumed.

How small is small?

Many compounds are only allowable in micrograms per litre. That's parts per billion. Some are allowed in milligrams per litre which is parts per million. Very small amounts you'll agree and all limits are set with due regard for public health.

Surely that's not allowed?!

Legislation allows maximum concentrations of certain things in tap water. It doesn't mean they have to be there. For example, there are recommended concentrations for things like iron, aluminium, copper, cyanide, arsenic and cadmium.

A number of chemical compounds are also allowed in certain concentrations. UK water companies test their water regularly and submit the data to the appropriate regulator for analysis. Many water companies also publish it on their own website so you can search for it yourself for your area. Many of the compounds listed in the legislation may not appear in your water or, if they do, they're in vanishingly small amounts. Don't

“Limits of parts per billion at most are common for many contaminants”

worry, you won't die of arsenic poisoning from tap water in the UK because our treatment plants deal with it. In less developed countries

It is a big problem though.

Water quality legislation isn't static, however. While the various pieces of legislation set out limits for a range of things that may appear in our drinking water, the regulators are vigilant for new threats to water quality and public health. This vigilance often sets part of water company business plans when contaminants of real threat are found and the regulators require action.



Scotland and Northern Ireland have their own regulators for drinking water quality.

Regulating quality part II

The Environment Agency and DWI operate only in England and Wales. Scotland and Northern Ireland have their own regulators. Indeed the structure of the water business in those countries is different from what see in the rest of Great Britain.

In Scotland the Drinking Water Quality Regulator (DWQR). The powers of the DWQR are set out in the Water Industry (Scotland) Act 2002. In Northern Ireland the Drinking Water Inspectorate for Northern Ireland (DWINI) has similar powers.

Both regulators monitor water quality in

their areas and carry out inspections of the local water supply facilities. Each regulator can initiate enforcement action if water quality is below the required standard.

While things work slightly differently in Scotland and Northern Ireland the water quality regulators do work together on a wide range of issues to ensure consistency and the sharing of best practice and lessons to be learnt.

Regulation seems a woolly and vague topic for many outside the water industry but the information it produces

is essential for making sure water quality can be maintained. And, more importantly, much of that information is available online, either from the websites of the regulators or from the water companies themselves. This lets the ordinary consumer see if the water in their area has failed any tests and it ensures vigilance by the water companies, since the quality of their product is there for all to see. For Scotland, try their interactive map at www.dwqr.org.uk/map. The DWI (NI) publish annual reports about drinking water quality (as does the DWI in England and Wales) but many other water companies put their data online.

Q&A – How can my voice be heard by water companies?

Q: Who represents customers?

A: There is indeed. The Consumer Council for Water (www.ccwater.org.uk) represents the views of consumers to regulators and water companies. CC Water has offices throughout the UK and regularly attends meetings with all of the UK water companies.

CC Water publishes and compiles documents on many topics, from how to avoid frozen pipes to in-depth reviews of customers' view about water companies.

Q: I need to complain!

A: You can do this directly to the water company in the first instance. Water companies have a duty to record each complaint and make this information available to OFWAT and CC Water.

If you cannot resolve your complaint directly with the water company then the Consumer Council for Water can help. They will deal with the water company and have an excellent record of complaint resolution.

When in Rome.....

England

The days of the old water boards disappeared many years ago but the name has stuck for many. In England there are ten companies who do the dual job of supplying water and treating wastewater. Aside from those there are a number of water-only companies who produce drinking water but leave sewage treatment to one of the “big ten”.

Wales

In Wales there is one company that supplies water to (most) of the country and which also treats the wastewater. This is Dwr Cymru (Welsh Water). Dee Valley Water is a water-only company that supplies parts of north east Wales. Dwr Cymru is owned by Glas Cymru.

Scotland

The Scottish water industry uses a different business approach, with Scottish Water producing the drinking water and treating sewage but a range of competing companies selling the water. At the moment only businesses can choose their supplier.

Northern Ireland

A state-owned water company, whereas English, Welsh and Scottish companies are private. NI Water is owned by central government but does have substantial independence.