

ADVISER

CRYPTOSPORIDIUM: UNDERSTANDING AND PREPARING FOR A CONTAMINATION INCIDENT ACROSS THE UK WATER NETWORK.

A sustained and transparent commitment by the UK water industry ensures that current water treatment practices deliver a high level of protection against cryptosporidium exposure and infection via the potable water supply infrastructure.

The recent cryptosporidium outbreak in Lancashire, however, serves as a timely reminder of the need for review of ongoing risk mitigation strategies, including event preparedness and the value of bespoke insurance cover.

UNDERSTANDING THE RISK AND PROBABILITY

The protozoan parasite, cryptosporidium, infects both animals and humans and can cause cryptosporidiosis, a gastrointestinal illness that can be life threatening to the elderly, to the seriously ill, or to those with a weakened immune system. Transmission is usually via contact with soil, water, food or surfaces contaminated by infected faecal matter, while treatment is currently symptomatic.

Oocysts have a tough outer shell that protects the parasite within, enabling them to survive for months in surface water or soil; source is, therefore, varied with the parasite washing into water catchments – even treatment works – farms, livestock, private sewers and septic tanks, or wastewater treatment works discharges. The oocysts are very small in size but the parasite is extremely resistant to chemical disinfection, including chlorine. Transmission rates are high for humans and animals and it is immediately infectious yet despite significant risk of cryptosporidium exposure, the probability of infection via the UK potable water supply remains low, due in part to continued industry investment.

Raw water quality is monitored continuously, with results reported to the UK Drinking Water Inspectorate (DWI). Comprehensive risk assessments ensure appropriate controls and remediation can be implemented and updated as required, while new treatment expenditure programmes are intrinsic to the Ofwat¹ pricing review and asset management programmes.

¹The UK Water Services Regulation Authority



MITIGATING THE RISK

A multi-barrier approach to prevention is employed, similar to the conventional treatment and control of other faecal pathogens. This includes protection of the water catchment against contamination from faecal waste, adequate water treatment processes (optimised filtration, ultraviolet or membrane filtration for example), and the protection of treated water during distribution to consumers.

This relies heavily on sample monitoring; however, there is a danger that this can miss or delay the identification of peak events – extreme weather conditions or man-made events, including accidental spills, changes to farming practices or water quantity management practices – which can impact on water quality indicators.

Preventative measures are only effective if site specific and if processes are adhered to; indeed, the DWI has concluded that inadequate treatment processes or breaches of the integrity of distribution systems are the root cause of an outbreak in the majority of cases investigated.

Companies must ensure that water is adequately treated to remove or render harmless any contaminant that poses a danger to public health. In the case of cryptosporidium this is increasingly inactivation, usually by ultra violet (UV) disinfection, rather than removal.

Particular attention must also be paid to the prevention of post-treatment contamination: infiltration of contaminants in the distribution system through leaks or during construction and repair, cross connections and back-siphonage drawing water back into the network, or contamination of domestic storage tanks and standpipe systems.

CORPORATE PREPAREDNESS AND EVENT MANAGEMENT

As the table illustrates the impact of a cryptosporidium outbreak on a water company is multifaceted.

Event preparedness and broader crisis management planning are the benchmarks of sound governance; a strategic framework built on appropriate insight, preparation, and planning that will minimise the impact of a contamination incident and protect, as far as possible, corporate reputation.

POTENTIAL IMPACT OF A UK WATER CONTAMINATION INCIDENT

OPERATIONAL

- Impact on operational efficiency levels.
- Performance against outcome delivery incentives (ODIs): Category three water - quality events standard and water - quality service index.
- Effectiveness of business continuity planning, particularly with infrastructure developments, upgrades or multi-license incidents.

FINANCIAL

- Increased cost of remediation and goodwill payments to customers.
- Potential impact on revenue/regulatory capital value for Ofwat's AMP7 asset management programme.
- Compensation and goodwill payments a disallowable cost under Ofwat's price control framework.
- Incurred penalties (or loss of reward).
- Fines arising from prosecution under the Water Supply (Water Quality) Regulations.

REPUTATIONAL

- No payment obligation for failing to provide potable water to customers under the guaranteed standards scheme.
- Ofwat's growing focus on customer engagement, trust, and confidence in service delivery through Ofwat's PR19 price control framework.

CRIMINAL

- All incidents investigated by the DWI.
- If a result of corporate negligence then the DWI can recommend criminal charges.
- Potential personal liability of a corporate director or officer to stakeholder activism, third-party litigation, and error and omissions.

This might include a review of the existing corporate preparedness strategy, plan development, readiness training, tabletop, and expert simulation exercises, as well as communication and media planning. It should be reviewed and stress-tested regularly, reflecting planned infrastructure developments/upgrades, technological enhancements or investment, and significant suppliers.

INSURANCE: POLLUTION OR CONTAMINATION?

Traditional property and public liability policies provide very limited protection against water contamination incidents. Following an outbreak in 2008, which resulted in more than GBP5 million of uninsured additional expenditure for the water company concerned, water contamination insurance was developed, providing financial protection against the considerable costs incurred by water companies following serious contamination of the potable water supply, whether accidental or malicious in nature.

Such policies are specifically designed to close the material gap in corporate risk financing programmes and covered losses may include:

- UV plant installation and removal expense.
- Alternative mass distribution of water.
- Failure to restore supply payments (including boil water notices).
- Customer loss of gross profits.
- Customer extra expense.
- Crisis costs.
- Crisis consultant costs.

The principal focus of the cover is first-party costs, the additional expenditure incurred by the water company to respond to the incident and compensate customers, and it is this feature which makes it a much more bespoke and suitable solution than either pollution liability insurance or environmental impairment liability insurance. Cover is available up to a limit of GBP30 million and quotations can be secured on receipt of a short application form.

KEY TAKEAWAYS

While there have been no confirmed cases of sickness linked to the August 2015 outbreak, cryptosporidium remains a significant threat to human health and life. Marsh, therefore, advises all water companies to consider the following questions:

- How prepared is your organisation to handle a major contamination incident? Are your response plans designed to address the full range of risks? Are they up to date and linked to other corporate response processes?
- Are your response processes aligned and properly linked across the corporate organisation? Are these stress-tested as part of an ongoing process? Are they linked to scenario planning that includes countrywide incidents such as physical or cyber-related terrorist acts?
- How robust is your business continuity model? Do you understand critical supplier dependencies, particularly remedial equipment and bottled water suppliers?
- Have you modelled the potential costs of both short-term and more sustained incidents? How might this impact on cash flow, long-term solvency and liquidity?
- Have you evaluated water contamination insurance coverage, costs, triggers, and exclusions against traditional property, liability, and pollution cover?
- How do key stakeholders view your organisation's level of preparedness? How have you addressed your preparedness and readiness levels in the compliance and audit process?

2015 LANCASHIRE OUTBREAK IN BRIEF

6 August	<ul style="list-style-type: none">• Very low traces of cryptosporidium identified via routine checks at Franklaw water treatment works near Preston. Boil water notice issued. 300,000 households and businesses affected. Bottled water provided for most vulnerable of customers.• Network modelling to understand how the parasite is spreading.
21 August	<ul style="list-style-type: none">• Eight ultraviolet rigs installed – one of United Utilities’ biggest ever engineering projects.• 2,500 miles of pipes flushed and storage reservoir cleaning programme actioned.
27 August	<ul style="list-style-type: none">• Boil water notice lifted in some areas.• Speculation that a dead pheasant in pipes near the treatment works was the source of contamination.• Compensation process gets under way; modelled compensation rate of GBP50-GBP60 for households according to when the boil water notice was lifted. Business claims relating to incurred/additional costs or loss of earnings through temporary closure, reduced footfall, or through operating at reduced levels as a direct result of the boil water notice to be examined on a case-by-case basis.
6 September	<ul style="list-style-type: none">• Boil water notice lifted from the remainder of affected area.• No confirmed cases of sickness linked to the outbreak.
30 September	<ul style="list-style-type: none">• Compensation process expected to complete by end of September (upward of GBP15-GBP20 million).

Source: Marsh research

CONTACTS

For further information on how Marsh can manage contamination risks, including details of our water contamination product, please contact your local Marsh representative or:

ANDREW AINSCOUGH
Senior Vice President
UK Power and Utilities Practice
Tel: 020 7357 5853
Mob: 07825 782527
Email: andrew.ainscough@marsh.com

HARRIET PAYNE
Vice President
UK Power and Utilities Practice
Tel: 020 7357 3090
Mob: 07825 782607
Email: harriet.payne@marsh.com



The information contained herein is based on sources we believe reliable and should be understood to be general risk management and insurance information only. The information is not intended to be taken as advice with respect to any individual situation and cannot be relied upon as such.

Marsh Ltd is authorised and regulated by the Financial Conduct Authority.

Copyright © 2015 Marsh Ltd All rights reserved

GRAPHICS NO. 15-1001b