Defra Science Advisory Council Water Quality Subgroup

Final report on the SAC-EQ discussions relating to the Cryptosporidium Incident

1. Background
The Science Advisory Council Subgroup on Water Quality (SAC-WQ) has been convened with specific focus on the science of Cryptosporidium and drinking water supplies in England.

Its role is to share and discuss information and observations on the evidence base relating to the current incident in Lancashire.

It will not engage with operational decisions or management in the response to the incident.

Once the incident is resolved, the need for this specific sub-group will be reviewed. The expectation is that it will then be closed.

Annex A provides a list of SAC-WQ members.

Post meeting addition: The boil notices were lifted in early September 2015; and therefore SAC-WQ was stood down.

2. Meeting
The group met on the 25th August for a two hour teleconference to explore the science relating to the Lancashire incident.

The group discussed with relevant Defra officials whether there are any evidence-based issues that ought to be taken into account in reaching decisions in both the current and any future outbreaks.

3. Conclusions
Based on the information provided to them in advance and at the meeting, the group concluded that:

- An impressive amount of evidence gathering had taken place in response to the incident.
From reviewing the information provided to them in advance, and during the meeting, SAC-WQ has not identified any concerns with the process that has taken place to address the outbreak.

Although there have been no cases of human infection so far, SAC-WQ cannot definitively say that the current incident will not lead to cases of human infection; however, they thought it unlikely and given information about the known incubation period of Cryptosporidium this will be confirmed in the next few days.

Post meeting addition: No reported cases of human infection have occurred.

The group identified some longer term considerations, that could be of relevance to future decisions, including:

- the importance of a comparative framework for assessing options, as (for example) boiling water does not have zero cost associated with it for householders, businesses, etc., and the cost can be anticipated to be very different for households against institutional customers (bill payers) such as hospitals and schools. As such, this should be accounted for in managing the risk;

- at what point UV treatment should be implemented in a system categorised as high risk for Cryptosporidium contamination in order to avoid loss of public confidence. SAC-WQ suggested that the potential of a risk threshold above which UV treatment should be implemented would be worth exploring;

- the need to consider the implementation of testing that could be applied to enable oocyst viability to be assessed in cases where oocysts were detected, but there was a question as to whether they posed a true infectivity risk due to degradation. Such cases may be highlighted when failure to obtain DNA amplification might be accounted for by the presence of degraded oocysts; and

- the need for further social science knowledge, exploring aspects such as adherence to a boil notice, and customers’ understanding about the water cycle and treatment processes and how that manifests in public confidence.

SAC-WQ offered to continue to provide Defra with support if required. Specifically the group offered to act in a critical friend role to provide support and challenge to Defra in conducting a post-incident lessons learned exercise.
Annex A: Membership of SAC-WQ

- SAC members
  Professor Charles Godfray
  Professor Peter Liss
  Professor Sarah Whatmore

- SAC-WQ co-optees
  Professor Jonathan Wastling (co-opted SAC-WQ member) – Pro Vice-Chancellor and Executive Dean of Natural Sciences at Keele University; NIHR Health Protection Research Unit in Gastrointestinal Infections. His research focuses on host-pathogen interactions in protozoan parasites including Toxoplasma, Neospora and Cryptosporidium, as well as work on viral and bacterial pathogens.
  Professor Paul Hunter (co-opted SAC-WQ member) – Clinical Professor, Norwich Medical School at the University of East Anglia. Expertise in the spread of infection by drinking water.

- Non-Defra Officials
  Professor John Simpson - Head of Emergency Response Department and Deputy Director of Health Protection Directorate at Public Health England.
  Dr Marsha Quallo-Wright - Head of Resilience, Growth and Security Team; GO-Science

- Defra Officials
  Professor Ian Boyd – Defra Chief Scientific Adviser.
  Professor Jeni Colbourne – Deputy Director, Defra Water and Floods Directorate and ex-Chief Inspector of Drinking Water.
  Policy Advisors, Defra Water Availability & Quality Programme.
  SAC Secretary.