VALIDATING THE CAUSE OF

COLIFORMS IN DRINKING WATER

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VALIDATING THE CAUSE OF COLIFORMS IN DRINKING WATER

Executive Summary

Objectives

This project aims to devise a procedure for investigating the origin of coliforms so that appropriate actions can be put in place to ensure that public is not compromised.

The guidance was developed by reviewing water company procedures for investigating and reporting the occurrence of coliforms and *E. coli* in drinking water. Elements of good practice were identified from these procedures and used to devise a framework for a systematic approach containing a sequence of actions for an effective investigation.

Conclusions

Water company procedures were consistent in their overall approach to investigating the occurrence of coliforms and *E. coli*. All companies promptly responded with further monitoring although the extent of other checks on the integrity of the water supply system depended on the location of the original occurrence.

Some water companies placed sole reliance on the outcome of further monitoring to validate the integrity of the water supply system. It can be very difficult to confirm the absence of indicator organisms unless carrying out very extensive monitoring of the water supply system.

The extent of reporting to DWI was variable amongst water companies and this affected the perception of the extent of the investigation. It was not always clear whether insufficient information was being provided in the report to DWI or there was an absence of a thorough investigation.

Where no cause for an occurrence was identified, several water companies put in place enhanced surveillance. This involved more frequent sampling over an extended period of time. Such a measure provides reassurance that the water is safe whilst the investigation is ongoing, but also may provide additional information to identify the source of contamination.

The preferred approach, from this work, for investigating coliform occurrences was for guidance that water companies could incorporate into their own procedures and which contained the elements of good practice, drawn from industry wide experience.

A Drinking Water Safety Plan was considered to be a suitable framework for implementing and assessing the effectiveness of corrective action required to prevent recurrence of an incident.

Recommendations

- Implementing this guidance on responding to coliform occurrences requires sufficient time to judge its improvement in operational practice. Subsequent modification may be necessary where new information emerges from an investigation.

- Where, on the basis of the evidence, a cause is identified or strongly inferred the effectiveness of implementing appropriate corrective measures could be judged against improvements in future compliance or level of service.

- Testing associations between a likely source and the occurrence of indicator organisms would allow water companies to be more confident in verifying their origin. However, where no obvious cause has been found, the verification process becomes more difficult. In this situation no cause can necessarily be ruled out and water companies should remain vigilant in their scrutiny of operations.

- There may be merit, however, in water companies setting up a forum to share their experiences more widely and so increase the validity of the verification process, and correspondingly the robustness of their Drinking Water Safety Plans.

Benefits

- Water companies will be able to respond to each incident in a timely and effective manner which will minimise the duration and cost of investigations

- The outcome from the investigation will enable appropriate corrective action to be implemented and will strengthen the robustness of a water company Drinking Water Safety Plan.