Drinking Water Quality Regulator for Scotland

Incident Summary

Marchbank WTW
Loss of the treatment process
October & December 2024

Event No. 15297

Event Category: Significant

On two occasions, single *Cryptosporidium* oocysts were detected within the treated water supplied by Marchbank WTW (23 - 24 October 2024 and 24 - 25 December 2024). Both were co-incidental with elevated turbidity. There were no sample failures at consumers' taps and no consumer contacts following these events.

The first detection was associated with planned activity on 22 October to increase output in preparation for an outage the following day. The flow rate change used was in excess of company requirements and resulted in elevated turbidity. Following the outage, the works was reintroduced with a flow rate change within company requirements, however, this also resulted in turbidity breakthrough. This detection is concluded to due to the impact of excessive flow changes related with planned activity.

The second detection was made following a power outage on 23 December where an emergency generator was used to maintain output for a period of 2 hours (15.30 – 17.30). Whilst chlorine disinfection was maintained throughout, the power outage had a significant impact upon the upstream process stream including the loss of poly-dosing and the loss of turbidity monitoring of the filtered water. There was a delay in responding to this event with poly-dosing not restored for a period of approximately 17 hours, which resulted in elevated turbidity (>1.5 NTU) throughout the morning/early afternoon of 24 December. This second detection is concluded to be due to an ineffective response to the loss of process control following a power outage. This resulted in an avoidable and prolonged period where the treatment of raw water was inadequate.

Following the first detection, the correct actions were taken and water quality restored.

However, I have significant concerns regarding the circumstances of the second detection, for which the consequences could have been more serious. I am also disappointed that this occurrence was not notified earlier due to the failure to adequately prepare water for disinfection

Following the power outage (15.30) more than 300 alarms were received, many being of high priority. The alarm log shows that the Company had sufficient information during the afternoon of 23 December to have recognised the loss of poly-dosing and issues with turbidity monitoring, but an Operator was not dispatched until 21.50 which is an unacceptable delay. In addition, the issues were not escalated appropriately which resulted in the delay of installation of a *Cryptosporidium* monitoring unit which was not installed until 10.00 on 24 December. I am particularly concerned that multiple alarms were received regarding turbidity monitoring, but this did not prompt a rapid response that would be expected, considering the criticality of this parameter in relation to *Cryptosporidium* and chlorine disinfection.

Once on site, the Technician restored turbidity monitoring of the Rapid Gravity Filter (RGF) filtrate before midnight, however, did not reinstate poly-dosing due to a misunderstanding with the Supervisory Control and Data Acquisition (SCADA) system. I am critical that there was no physical check of the poly system or a confirmation that the alarm was not still active but do acknowledge that the Operator was time limited due to the number of hours worked. This issue, however, also resulted in the Operator not having time to rectify other issues on the site, including the restoration of pH monitoring of the filtered water. I am very critical of the lack of management oversight which could have allocated additional resources to have permitted resolution of issues and to have responded to additional alarms that occurred overnight.

The following morning the Team Leader co-ordinated activity to restore poly dosing and rectify other issues onsite. Elevated turbidity continued to be experienced throughout the morning/early afternoon, with the turbidity of water exiting several RGFs exceeding 1.5NTU, before the benefit of the restoration of poly dosing was realised. I am disappointed that at the

time of the incident the exact turbidity of water entering disinfection (combined filtrate) could not be established due to the lack of a combined turbidity monitor nor, were appropriate bench tests undertaken. I am pleased to note that following this incident a combined filtrate turbidity monitor has been installed.

Appropriate downstream monitoring was undertaken on 24 December with no breaches of regulatory standards encountered.

To note, DWQR is very critical that the incident report lacked much detail of the circumstances of each detection to facilitate assessment. Primarily, this related to the provision of online monitoring data and alarm logs, which were subsequently requested. DWQR makes several recommendations to ensure appropriate actions are taken to prevent recurrence.

The event has been categorised as significant. Scottish Water has identified eight actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made five additional recommendations.