

Whitehillocks WTW Coagulation Failure 29 October 2014

DWQR Inspector:
William Byers

Event No. 6518

Event Category: Significant

Summary of Incident

The Intelligent Control Centre (ICC) received an alarm at 23:38 on 29 October, of a low pH in the coagulation process at Whitehillocks works. The standby operator was called out to investigate and on arrival at the site at 01:30 on 30 October, found the lime-dosing pump was not working. It was established that the flow sensor was faulty and unfortunately, the standby pump was unavailable due to pending repair work. After cleaning the pump, the operative restarted dosing on the manual setting. Bench tests carried out on the clarified, treated and final Aluminium levels showed only the clarified aluminium to be high with the others at a normal level. Bench tests were carried out periodically to compare with monitor readings and it was not until 05:00 that the treated levels were shown to be rising. This trend triggered the procedure for reducing flow through the works and isolation of the clear water tanks to divert production and preserve the quality of the water supply into the distribution system. Additional sampling was initiated at the works and in the distribution system to monitor any impact on the supply. With control restored over the coagulation process, the clarified aluminium levels had reduced significantly by 11:00 and the full filtration process was restored. Continuing monitoring of the situation showed the level of aluminium in the final water to have reached a level of 548µg/l at 15:00 from which it then reduced. A formal sample taken at 18:00 showed a level of 210µg/l in the final water from the works.

DWQR Assessment of Cause of Incident

DWQR is satisfied that the incident was caused by a failure of lime dosing to the coagulation process and that this was a consequence of a faulty flow sensor.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water took appropriate actions to restore the coagulation process and to initiate the required sampling of the works and in the distribution system. DWQR retains a concern however that no sampling was carried out at consumers taps in properties fed directly from the trunk main between the works and Meikle Tullo service reservoir, the first major storage point in the distribution system. It is likely that consumers in that area would use water containing levels of aluminium above the standard of 200µg/l over the afternoon and early evening of 30 October.

In addition, no monitoring for *Cryptosporidium* was carried out over the course of the event. The next sample taken for *Cryptosporidium* was on 6 November, which showed there to be no detections. DWQR considers it unacceptable that Scottish Water failed to monitor this aspect of water quality during or immediately after a failure of the treatment processes designed to form a barrier to the parasite.



DWQR acknowledges that the new procedure put into action to limit the discharge of non-compliant water from the works, developed as a consequence of earlier coagulation failures in May and July, brought the desired control to this event and limited the impact on water quality in the distribution system.

The range of Scottish Water actions and DWQR recommendations made for those previous failures have since been completed and DWQR has greater confidence in the controls and monitoring of the processes now in place at this works.

The event has been categorised as significant. DWQR has made one recommendation and will be monitoring to ensure it is completed prior to signing off the incident.

