Drinking Water Quality Regulator for Scotland

Incident Summary

Herricks WTW
Failure of coagulation
10 August 2019

DWQR Inspector:
Bill Byers

Event No. 10421

Event Category: Significant

On 7 August, maintenance work was carried out to replace a faulty air valve on the principal raw water main supplying the raw water storage reservoir. A low level alarm from the raw water reservoir at 1:00am on 9 August led to a realisation that the raw water main had air-locked and only a minimal flow was being delivered. An alternative raw water intake was then opened up. This intake however delivers a known poorer quality water and it was markedly more so, due to the prevailing very poor weather conditions. By mid-afternoon the air lock was cleared but the poorer quality source was maintained to assist in recovery of the level in the raw water reservoir. A telemetry alarm of low level in the clear water tank required attendance by the standby treatment operator on 10 August, at which stage the inlet flow to the works was increased. At this time, Aluminium levels were increasing and difficulties were being experienced with coagulation. This continued through the night. It was discovered the next morning that the coagulant dosing pump was not responding to the desired dose changes and it was placed in manual control mode. The required changes to coagulant dosing then had a knock-on effect to pH control resulting in an extended duration of manual intervention in the treatment processes. The recovery actions included diverting clarified water to waste for periods to permit better quality water to then be fed to the clear water tanks and the use of tankers to augment the volume of water in the tanks. The poorer quality raw water source was closed off at 12:20 on 11 August and by 6:00am on 12th, treatment had stabilised. Over the course of the event and thereafter, reactive sampling had shown failure of the Aluminium standard and detection of *Cryptosporidium* oocysts in the final water. In addition, one failure of the Aluminium standard occurred in a sample from a consumer tap taken on 12 August. All subsequent sampling showed the water supply to meet water quality standards.

The cause of this incident is clearly the inability of the processes at this works to respond to and effectively treat the poor quality water presented from the raw water reservoirs. It is my view however that whilst the heavy rainfall at this time was causing a significant worsening of the water quality from the various sources which could potentially feed the raw water reservoirs, Scottish Water carried out maintenance work on the raw water main from the primary and best of these sources, which should have been deferred during this time of obvious challenge to the treatment works. The failure of the main to recover flow was a clear risk and the consequent reliance on known poorer quality sources, a

situation which should have been avoided. These decisions are particularly concerning in light of the commitment given to DWQR in May, that all efforts would be taken to maintain an optimised process through the works.

The event has been categorised as Significant. Scottish Water has identified ten actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made no additional recommendations.