

# Incident Summary

## Turriff WTW Loss of control of final water pH 14 October 2020

DWQR Inspector:  
Bill Byers

Event No. 11291

### Event Category: Serious

On 14 October, Turriff water treatment works (WTW) was shut down to enable generator maintenance to be carried out. The works was restarted at 3:00pm but suffered a loss of control in final water pH dosing at 6:00pm when pH values began to rise. A high pH alarm was received in the Intelligent Control Centre (ICC) and was initially suppressed in the belief that there was still a presence on site. An attempt was made to contact the standby operator at 6:35pm at which time he was en-route to another treatment works to investigate alarms there. The issue was also escalated to team leaders and Public Health Team. The phone message to the standby operator was not picked up until arrival at his destination at 7:00pm. After attending to the issues there and arriving back at Turriff, he identified problems with the lime dosing plant in which both duty and standby systems were affected. A fresh batch of lime solution was prepared and with this in service, pH and turbidity values returned to within normal operating limits. The lime dosing failure caused elevated pH and turbidity for some four and a half hours and also caused the shutdown of ammonia dosing and therefore loss of control over the chloramination process. The primary disinfection of the treated water was unaffected by the lime dosing failure. Reactive sampling arranged to monitor the effect on the water in supply, confirmed there were failures of the high pH limit in the water leaving the main Service Reservoir (SR) downstream of the works and in a subsequent SR within the distribution system. In all other chemical and microbiological respects, the water met drinking water quality standards.

Scottish Water's investigations show that there was a failure of the lime dosing plant caused by the planned shutdown of the works. In this, the off duty lime solution tank was in the process of batching when the shutdown occurred which caused the supply of service water to stop and to make the tank unavailable for service. A control fault on restart, caused continual batching within the duty tank and the consequential over-strength lime solution being dosed. I am content that this is the cause of the incident. There was a subsequent and very similar failure of the lime dosing plant occurring on 4 November reported under Water Quality event 11335. In this case, control issues were found to have again resulted in over-strength lime solution being prepared and dosed. These are the latest in a series of pH or turbidity events at this WTW and these issues must be addressed by Scottish Water.

The event has been categorised as Serious. Scottish Water has identified four 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.

