

Pateshill WTW Significant Consumer Concern December 2023

DWQR Inspector:
Colette Robertson-Kellie

Event No. 14050

Event Category: Serious

Approval was given through Scottish Water's Treatment Control process to isolate the raw water main from one of the two reservoirs feeding Pateshill WTW, Baddingsgill Reservoir, to allow planned works to the reservoir draw off tower. On the 30th October 2023, the raw water main was shut down. On completion of the works, the raw water main was returned to service at 10:40 on the 5th December; this operation was not submitted to Treatment Control for approval. Five minutes after the main was re-opened, the raw water turbidity at the treatment works increased from 1.4 NTU to between 2 and 7 NTU for around 36 hours. There was a slight increase in turbidity across the processes on the treatment works, but generally the treatment processes responded well to the rapid change in raw water turbidity.

The first consumer contact for taste and odour within the Pateshill area was received by Scottish Water at 13:34 on the 6th December, and following further contacts the situation was escalated within the organisation at 20:37. Contacts were monitored, and at 22:00 an Operator was called out to the treatment works to investigate. A Business Alert Team was formed, and incident calls began. The Operator took bench and laboratory samples for chlorine, turbidity and colour, and a *Cryptosporidium* sample filter was installed. A flushing plan was arranged for the network on the 7th December. The Baddingsgill main was isolated from supply at 11:30 on the 7th December and complaints continued until the 17th December.

Sampling from the treatment works and from the network during this incident showed that there were 35 failures of the manganese standard in the network, as well as 32 samples at

the treatment works which exceeded the standard. Additionally, 47 out of 52 samples analysed contained phenol or halogenated phenols.

There were 419 consumer contacts between the 6th and the 17th December, with 396 reporting a taste or odour in their supply.

The cause of the incident was the re-introduction of the Baddingsgill raw water main. It is likely that there was a build up of sediment in the main, and that the main was scoured when re-opened, disturbing the sediment. It is thought that the sediment contained naturally occurring phenols, from for example vegetation and decomposition of plants and animals in the catchment. These phenols will have been halogenated during the routine addition of chlorine for disinfection of the water supply at the treatment works; halogenated phenols are known to have very low taste and odour thresholds.

Though there is no data showing the relative proportions of soluble and particulate manganese in samples at the treatment works or the network, the absence of consumer contacts reporting discoloured water despite high levels of manganese suggests that soluble manganese has been drawn from the anoxic bottom layers of the supplying reservoirs, Baddingsgill and West Water. It is thought that the work carried out at the draw off tower, along with a sudden change in pressure caused by the reintroduction of the Baddingsgill raw water main, has preferentially drawn water from the deeper parts of the reservoirs as the lower draw off points were open.

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

