

Killylour Zone
Manganese Failure
15th August 2014

DWQR Inspector:
Colette Robertson-Kellie

Event No. 6287

Event Category: Significant

Summary of Incident

On the 15th August 2014, nineteen consumers in a zone supplied by Killylour WTW contacted Scottish Water to advise there was a yellow discolouration of their drinking water. Of ten manganese samples taken in response to these contacts, four failed the standard. The abstraction point at the reservoir was changed, and the proportion of water from another treatment works into the zone was increased. A systematic cleaning of service reservoirs and the distribution network was implemented to minimise the risk of further disruption to consumers and maintenance to the works was carried out.

DWQR Assessment of Cause of Incident

The cause of the incident was naturally occurring manganese from the raw water entering the network due to a lack of reliable manganese removal treatment at Killylour WTW.

DWQR Assessment of Actions Taken by Scottish Water

A number of appropriate operational actions were undertaken by Scottish Water in response to this incident. The abstraction point at the raw water reservoir was changed to one higher within the reservoir, which over time successfully reduced the levels of manganese in the abstracted raw water. Additionally, an increased proportion of an alternative treated supply was used to supplement the Killylour supply and systematic cleaning of storage tanks and the distribution network showed significant benefit. Scottish Water also carried out maintenance of filters and replacement of existing media for media containing oxidising agents to assist manganese removal – this was completed in early December 2014. Chemical dosing and control systems were also upgraded to improve reliability.

However, the risk of further manganese related incidents persists at this ageing asset. A new treatment works with a membrane plant and second stage filters for manganese removal has been built, but it cannot currently be used. No pre-treatment was installed, causing the membrane to block, as it was overwhelmed by the poor quality of the raw water. DWQR was concerned by the delay in commissioning a modern standard of treatment at Killylour WTW and visited the works on the 12th February 2015, and a report on the progress of the upgrade of Killylour WTW to DWQR is required every two months until the works is satisfactorily upgraded. Scottish Water obtained planning permission on the 27th May 2015 to install a dissolved air flotation (DAF) plant to reduce the load on the membrane, and Scottish Water's projected date for completion of the project is the 23rd March 2016.

The event has been categorised as Significant.

