

# Incident Summary

## Camps WTW Elevated Manganese Late Summer 2021

DWQR Inspector:  
Matt Bower

Event No. 11977

### Event Category: Major

Elevated manganese concentrations in water leaving Camps WTW during August 2021 and October caused discoloured water complaints from consumers. The manganese was caused by exceptionally low water levels in Camps reservoir, a situation that also affected nearby Daer reservoir. The treatment process at Camps did have a manganese removal stage, but this was not switched on at the start of the incident. Once the process was re-commissioned, manganese concentrations rapidly reduced. There was a reduction in contacts from consumers, and by early September these were at very low levels.

It is apparent that manganese concentrations in raw water rose rapidly, once the reservoir fell to a certain level. As manganese was not routinely monitored in water leaving the treatment works (regulatory monitoring is at consumers' taps) the issue with the raw water was not spotted immediately. The presence of a manganese removal stage suggests that there had previously been concerns over the potential for manganese in the raw water. Scottish Water attributes its presence to the former use of ferric sulphate as a flocculant, some grades of which contain manganese as an impurity, although I consider this less likely as historical trends clearly show elevated raw water manganese at certain times in the past 15 years. Possibly, greater consideration should have been given to the risk of manganese at the site, with regular monitoring ex-works, although it is acknowledged that on this occasion, levels rose very quickly meaning a quicker response may not have been possible.

Once the manganese left the treatment works it accumulated in the distribution system, periodically causing discolouration to consumers' supplies over a wide area. Although contacts about discolouration reduced significantly once the manganese removal process was re-commissioned, it is likely that deposits of manganese remain in the system that may need to be managed to avoid future incidents.

The event has been categorised as major. Scottish Water has identified six 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.