

## Glengap WTW Aluminium failure 5<sup>th</sup> August 2023

DWQR Inspector:  
Moira Malcolm

Event No. 13648

### Event Category: Significant

On 5th August 2023 Glengap WTW shut down due to low treated water pH. The fault was called out by the Intelligent Control Centre (ICC) to the standby operator who attended site and with the assistance of E&M, traced the fault to a lime plant issue and restarted the plant. A relief operator then attended site as the standby operator was on rest time. They settled the plant down then left site mid-morning as SCADA and bench results were normal. The operator informed ICC they were leaving site, but no conversation about the work undertaken or review of water quality was undertaken, and the operator did not notice that although SCADA was fine, the aluminium was still in alarm on telemetry.

At 13:24 that day the ICC received a second stage high pH alarm but the alarm was deferred.

The following morning the final water pH breached the low pH alarm which ICC passed to the standby operator. The operator attended another site first as they assumed it was an instrument fault, but on arrival discovered the treated water aluminium was at 206µg/l and diverted the plant to waste. The operator contacted the ICC who confirmed that no high aluminium alarms had been passed out. The operator stopped the interstage lime dosing pumps and noted pH remained elevated, indicating siphoning into the system which ceased when he closed the isolation valves. Treated water quality returned to within normal limits and the plant was returned to service at 14:00. The incident was escalated to the public health team (PHT) but the length of time that aluminium levels were high and the impact of water quality was not conveyed.



The event was caused by issues with the lime plant – first tripped pump switches and then siphoning of lime slurry when the lime pumps were not operational – increasing the pH which stripped aluminium from the filters. However the incident was caused by a shocking lack of communication and escalation both within and between Scottish Water’s internal teams: the operator and ICC failed to follow standard procedures to communicate the actions that were taken. Another significant issue is that the SCADA and telemetry were programmed with different EALs and alarm settings, which did not help the operator or ICC recognise that problems were ongoing.

This incident occurred over the weekend when ICC is the default escalation team leader. However the ICC failed spectacularly at this – not calling out alarms or letting operators know of previous issues and not communicating effectively with PHT on the extent of the incident.

This is especially egregious as an almost identical incident occurred at Glengap only two weeks previous to this.

The event has been categorised as significant. Scottish Water has identified seventeen actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made one additional recommendation.

