Drinking Water Quality Regulator for Scotland

Incident Assessment

Glenfinnan WTW Chlorination Failure March 2011

DWQR Inspector:
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Summary of Incident

At 02.44 on 11/03/2011 a plant shutdown alarm was received at the Intelligent Control Centre (ICC) from the WTW at Glenfinnan . However, as the Clear Water Tank (CWT) was almost full, the alarm was deferred and an operator was not immediately sent out to the site. At 03.11 the same morning, a low Chlorine alarm was received by the ICC. After an investigation into telemetry, the ICC dispatched an operator to the site as it appeared that treated water had continued to flow into the CWT without being chlorinated after shutdown had apparently started. Upon arrival at the works the operator found the plant to be shutdown and no flow through the works. Additionally, final free chlorine levels in water leaving the WTW were within normal limits.

On investigation by the Team Leader, it was found that the works had not shutdown correctly after the plant shutdown alarm. It was apparent that the chlorine dosing system had shut down but that treated water flow had continued. As a result, the plant had run for 1h 19mins with unchlorinated water passing forward into the CWT. The plant had finally shutdown itself at 03.49, 22 minutes before the operator had arrived on site. At 08.45 the Public Health Team was notified of the shutdown failure due to the potential health risk, which resulted in a sample from the CWT being taken at 09.30. The sample indicated free chlorine was still within tolerance levels and results for both coliform and *E.Coli* were zero.

DWQR Assessment of the Cause of the Incident

DWQR recognises the cause of this incident to be a malfunction within the shutdown system at the works causing unchlorinated water to pass forward into the CWT for a period of 1hr 19minutes.

DWQR Assessment of Actions Taken by Scottish Water

Site investigations have been carried out by SW Operations, ICAT and the Process Scientist at the works after this event occurred. None of these investigations have been able to reproduce the delay in full plant shutdown that occurred, even when tested with a variety of different alarm and failure scenarios. In all cases the plant shutdown swiftly and flow stopped within 20 to 30 minutes.
Scottish Water has commissioned further investigations to try to determine the cause of the delay within the control system and to make any changes as required. DWQR considers this an appropriate response to the incident.
As a satisfactory interim measure, an additional high priority alarm has been introduced to alert staff if unchlorinated water is passing forward into the CWT. This alarm will ensure an accelerated response if a similar situation arises again.