

intellitect

The background of the cover is a wide-angle aerial photograph of a reservoir. The reservoir is a dark blue-grey color, surrounded by lush green hills and valleys. The sky is a vibrant blue with scattered white and yellow-tinted clouds. The image is framed by a large white triangle on the left and a large blue triangle on the right, which meet at the top center.

Reservoir Characteristics Analysis

Flow Patterns in Reservoirs

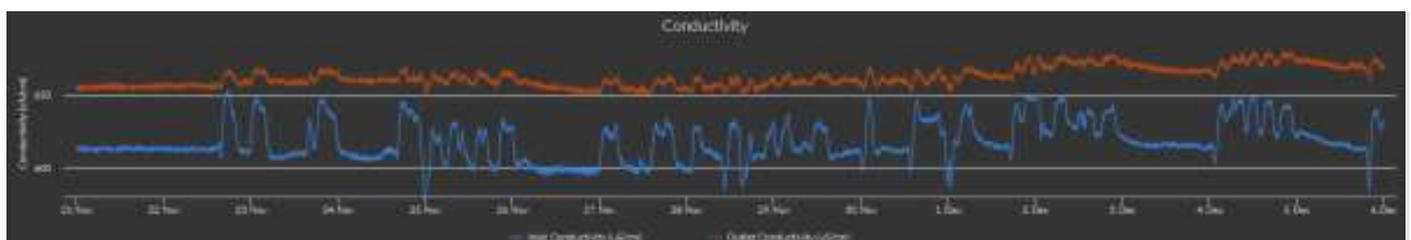
Method of analysis

By analysing the inlet and outlet of reservoirs we can attempt to understand what is happening within them, for example source mixing or stagnation.

Reservoir A

The analysis at Reservoir A suggests that the reservoir is operating as a LIFO structure, such that the water entering is leaving almost immediately afterwards. This can be seen by the pattern at the inlet being seen within a few minutes at the outlet. There is some mixing occurring before leaving, hence the increase in conductivity and dampening of its response, however this may be less than intended.

This method of operation means that there is the risk of stagnant water developing in the reservoir. It is difficult to ascertain how much mixing is happening and therefore the magnitude of this risk, but this could indicate the deterioration of internal baffles or a suboptimal pipe arrangement into the reservoir. Further investigations would need to be carried out in order to establish the risk of stagnation; this could be done through stopping certain inlets or through lowering the reservoir levels – whilst avoiding increased risk to supply.



Reservoir A conductivity comparison

Source Mixing in Reservoirs

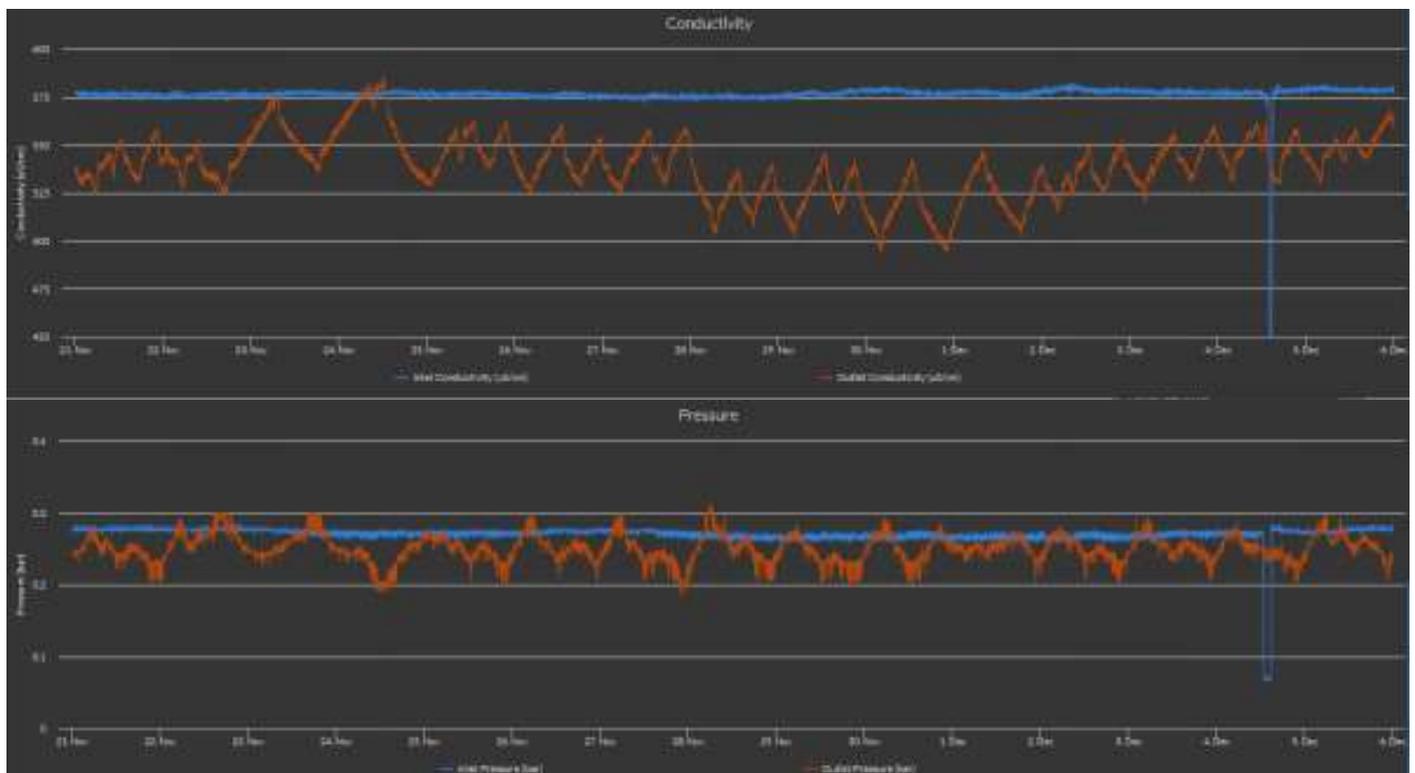
Method of analysis

By analysing the inlet and outlet of reservoirs we can attempt to understand what is happening within them, for example source mixing or stagnation.

Reservoir A

At Reservoir A the analysis between the inlet and outlet implies that there is mixing in the reservoir between the two inlets. While only one inlet is monitored, this is clear because the outlet shows a saw-tooth pattern in conductivity which is inverse to the pressure (which in turn shows reservoir level), despite a consistent and high flow rate at the monitored inlet and a flat conductivity response. This suggests that as the reservoir level drops, the outlet sees a greater proportion of water through from the currently monitored inlet.

Without monitoring the other inlet, it is impossible to be certain of this, but the evidence in the data so far is fairly conclusive. The presence of mixing at this site indicates that there is unlikely to be stagnant regions; in order to achieve mixing of two sources, any stagnant regions would be likely to mixed as well.



Reservoir A conductivity and pressure comparison

If you have any further questions please get in touch:



+44 (0)1794 834 280



info@intellitect-water.co.uk



© 2020 Intellitect Water Limited.

Registered Address: Whittington Hall, Whittington Road,
Worcester WR5 2ZX. Registration No: 05451911