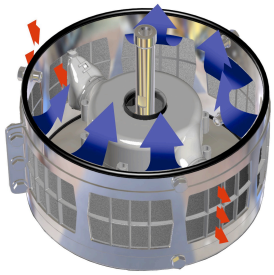
System description:

There a three different types of pump systems used to deliver the sample to the Ammonia or Phosphate monitors, these are as follows: -

Rotorflush:

This is a self filtering submersible pump, the pump draws the sample in through a 100 micron mesh filter and drives the bulk of the filtrate up through the outlet of the pump (shown by blue arrows on drawing to the right) but also forces some of the filtered water back out through the mesh (shown by the red arrows) which keeps the filter clean.



The main outlet from the pump runs up to the bypass loop on the back of the instrument cabinet, or on the back wall of the kiosk, and there is a bleed line from this bypass loop that feeds the analysers.

The maintenance of these pumps is covered by Servitech and essentially takes the form of cleaning the filter panels as and when required. The only manual steps that can be taken at site are to adjust the valve that applies back pressure to the pump and sample bleed line. If you find that there is low flow to the monitors you can slowly close the control valve which will force more of the filtrate back out in the red arrow direction and therefore apply more pressure to the cleaning of the filter panels, and will also force more sample to pass through the bleed line and therefore provide more sample to the monitors. If there is no flow to the monitors, when the blue handled valve is almost completely closed, there is a problem with the pump and you should contact Servitech on the call out numbers.

Tsurumi submersible pump:

This pump is used when there is insufficient depth of sample for the rotorflush to operate effectively, i.e. less than 30cm. It is a standard submersible pump and delivers the sample up to the bypass loop on the back of the cabinet or back wall of the kiosk. The maintenance of these pumps is covered by Servitech and essentially takes the form of cleaning the pumps as and when required. The only manual steps that can be taken at site are to adjust the valve that applies back pressure to the pump and sample bleed line. If you find that there is low flow to the monitors you can slowly close the control valve which will force more of the sample to pass through the bleed line and therefore provide more sample to the monitors. If there is no flow to the monitors, when the blue handled valve is almost completely closed, there is a problem with the pump and you should contact Servitech on the call out numbers.

Surface mount pump:

When the available sample is very low, or the area from which the sample is being drawn is sensitive, a surface mount pump is used to deliver the sample to the monitors. The feed pipe to the pump will be routed through an outer guard pipe, and where possible/necessary there will be a sinker weight or strainer on the uptake end of the pipe. The outlet side of the pump will feed either a turbidity flow cell, or the small sample pot described on the analyser sheets. As with the other pumps the maintenance is covered by Servitech and there is very little user intervention possible. The most common/obvious problems are blockages on the inlet, which can be checked by pulling the flexible pipe up the guard pipe and inspecting the inlet, and the tubing that runs round the pump head can split, normally a spare will be left with each pump, but essentially if it has split contact Servitech.

Sample delivery loop:

Both submersible pumps deliver their sample to the loop shown to the left, the sample enters the loop up the left hand leg, exits it via the right hand leg (after the blue handled valve) and is fed to the analysers or sample pots via the isolation valve on the swept tee on the top. The amount of sample delivered to the monitors is controlled by the blue handled valve, i.e. closing this valve will force more sample up the bleed line. The monitors can be isolated from the sample by closing the valve on the bleed line

WHEN PERFORMING ANY MAINTENANCE, AS ALWAYS, THAT GLOVES AND ALL OTHER APPROPRIATE PPE IS USED, AND THAT YOU HAVE STABLE FOOTING.

This document is for reference purposes only and is to be used in conjunction with the training session and appropriate site and activity risk assessment and method statements.