

What causes pump station failures?

Pump stations are crucial for the movement of liquids between pumps. Unfortunately without regular maintenance and care, these pumps can become blocked or faulty and cause them to fail. Close monitoring and frequent maintenance are critical for keeping pump stations running.

Problems:

Blockages

The most common cause of a pump station failure is a blockage. Blockages typically occur when the system has not been maintained or has not been specified correctly in the first instance, meaning it is not designed to cope with the level of use for which it is required. Blockages can occur in a variety of places within the station such as in the pipework, the valves or the pump itself, any of which can cause failures. A common cause of a blockage is the build-up of fat, typically from cooking waste.

Level control

Another very common cause of pump station failures is a failed level control system, which is the result of either the floats failing or having debris caught up around them.

Water ingress

Failure can also be triggered by water ingress into the motor of the pump itself, which is caused by a damaged cable or from failed mechanical seals.

Corrosion

Pump stations can also fail if there is any unmaintained and corroded pipework or similar wear and damage to any valves.

Faulty equipment

Faulty components within a control panel could also cause complete failure.

Tripped contactor

It is also reasonably common that the pumps can overload, causing contactor to trip out and turn the pump system off.

As pump stations can be such large systems with many components and intricacies, the failure of any part is detrimental to the overall station.

Yet these issues aren't uncommon and will occur within a pump station over time. To prevent failures, we recommend regular servicing which will give you advanced notice of repairs, saving money and stress.



Solutions:

1. Servicing

The simplest and most effective way to prevent failure is to carry out regular servicing and maintenance. During a service, all of the key points where failures could occur are inspected. Any potential problems are then either rectified at point of service or identified as further work to be carried out. Servicing provides peace of mind and significantly reduces the chances of the pump station failing without warning. Regular servicing also reduces costs in the long run, as there will be less unexpected emergency repairs. All pump stations should be serviced a minimum of every 12 months, depending on the use and nature of the pump station. In situations where the station is in high use, it could need inspection as much as monthly.

2. Tankering

The service inspection will identify if there is any debris or fat build-up within the pump station. If there is, a tanker and jet washer will be required to remove it. Regular tankering to remove build up can significantly reduce the chances of blockages; therefore it is good practice is to have the station tankered at least once a year. Tankering can be included as part of the servicing if requested.

3. Controlling input

Controlling what is put into the pump station can also be a way of reducing the risk of blockages, because all pump stations have limitations on what they can pump both in terms of size of solids and chemical or fat content. If the users of the system purposely place incorrect items into the sewage system, this can often lead to blockages. For example, kitchen fats are regularly poured down the drain as liquid which then solidifies within the pipework and forms a blockage.

4. Technology

Some pump stations are not regularly visited as they may be offsite or hard to access. In this situation, we advise setting up a text messaging system which alerts the users/maintenance team to any problems. The issues that can be monitored this way include: excessively long pump running time (indicating there may be a blockage); tripped pumps; high levels in the tank; and loss of power. This monitoring is all carried out within the control panel. These systems can also be retrofitted to pump stations.

Example

One of our clients had a hotel which was replacing its pumps every year and constantly having issues with blockages (blocking up approximately once or twice every two months). We reassessed the system and found an air release valve that had never been commissioned. Separately from that we also found that the pumps were underspecified, so we upgraded the system with the correct pump specification. We replaced the pump system, and now service it every 12 months: they have since only had two blockages in the past four years.