

Water treatment



Treatment of process effluent is vital to remove as many potential contaminants as possible before water is discharged back into the environment.

Before water can be safely discharged, there are several steps that have to be undertaken. The primary treatment process as shown below is concerned with the initial separation of process waste into waste sludge and liquid effluent, with each then subjected to a series of further treatments.

During primary treatment, the effluent is continuously checked for pH (i.e. acidity/alkalinity), dissolved oxygen, turbidity and temperature. This is important to ensure the correct conditions for aquatic life upon final discharge.

For environmental reporting purposes, the quality and quantity of the treated effluent also needs to be measured and recorded.

How it works:

Continuous measurement of pH, dissolved oxygen, turbidity and temperature using online sensor equipment allows the correct conditions to be maintained.

The diagram shows how signals from the sensors feed into valve-operated control systems designed to regulate the treatment process.

Changes in the pH level from the set point, for example, are controlled by a signal sent to positioners on valves governing the supply of acid and alkali to the process. In a similar way, any variations in turbidity will be met with an increase or decrease in the amount of flocculant supplied to the process, with a signal sent from the sensor to the valve on the flocculant feed line.

Using recording devices such as a chart or electronic data recorder enables data to be stored for reporting purposes and allows operators to identify potential links between effluent quality and specific events in the treatment process.

How can ABB help?

ABB supplies a range of instrumentation equipment suitable for water treatment applications, including:

- Paper chart recorders
- Videographic data recorders
- Controllers
- Electromagnetic flowmeters
- Analytical sensors and transmitters for pH, dissolved oxygen, turbidity, etc
- Temperature sensors and transmitters
- Valve actuators and positioners

