

Project Design Phase

Part-2

Determine the requirements :

- Domestic wastewater and sewage monitoring are essential for protecting public health and ensuring clean water in the environment. Through the Clean Water Act, the Environmental Protection Agency (EPA) and individual municipalities are responsible for directly governing wastewater testing strategies and procedures. The EPA both issues and approves testing methods for a wide variety of contaminants and analytes found in wastewater including trace metals, nonmetals, salts, organic compounds, bacteria, viruses, and particles such as asbestos or silica. Individual municipalities dictate what tests are necessary, how often these tests are conducted, and how data are organized.

General Filtration:

- Many EPA and EPA-recommended methods do not specify filter type. They may designate parameters or specifications such as a pore size or format (disc or syringe filter) without detailing the filter material. Hydrophilic polyvinylidene fluoride (PVDF), polytetrafluoroethylene (PTFE), mixed cellulose esters (MCE), and cellulose acetate filters are all valid options for general filtration.

Requirement Analysis:

- Sample volume Recommended filter diameter
- < 1 mL 4 mm
- 1 – 10 mL 13 mm
- 10 – 100 mL 25 mm or 33 mm
- 100 mL – 1 L 47 mm
- > 1 L 90 mm

Filter size& Format:

- One of the primary considerations when selecting a filter format is sample size and volume. When filtering small volumes < 100 mL, a syringe filter is often the best choice. Because of hold up or “dead” volume considerations, the smallest possible diameter of filter should always be used. Generally, 4 mm diameter filters should be used for volumes < 1 mL, 13 mm diameter filters for volumes in the 1-10 mL range, and 25 mm or 33 mm diameter filters for volumes between 10 mL – 100 mL.
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- For volumes exceeding 100 mL, a vacuum filtration setup with cut disc filters is generally preferred. Consider a 47 mm filter for volumes ranging between 120 mL and 1 L. For sample volumes over a liter, a 90 mm cut disc can help facilitate a higher throughput and suitable flowrate.

Technical Architecture:

- Water has influenced design through its dynamic and fluid nature. Water is consistently acknowledged as an unsolidified energetic component, while the design is professed as a firm and stationary aspect of our domain. The very roots are prevalent in ancient water civilizations. Urban designs now reflect a need to ensure our waterfronts and life in harmony with nature.

- Water is well appreciated for numerous added causes in diverse cultures and religions throughout the world. All views are related to its basic functions and significance to life. The remunerations are numerous and as a result, leads to growth. Culture and religion are often associated, and as a result, cultural views on water are generally based on the predominant reliance.

Opensource frameworks:

- PARETO is an open-source software product, developed using state-of-the-art software engineering tools and development processes to provide not just an optimization framework for produced water management, but insight and input on how that framework is built and operates.

Third party –API's

- Third Party Water Supplier means a municipality, including but not limited to Manitowoc, or a public or private entity which contracts with the Authority to provide a water supply to the Authority. The term “Third Party Water Supplier” includes any water commission, parent, or subsidiary of such municipality or private entity.

Cloud deployment:

- Cloud allows us to provide an evergreen technology environment – we've got a constantly managed, secured, scalable environment for our data. In the past, we had large datacentres, which we needed to create a capacity to deal with data analytics and all of the things that go with that," says Ashby. "We've tried to create a data reservoir in the cloud."