Test Plan of the First phase of experiments with samples

Parameters:

- Following are the parameters that we will be either controlling or monitoring:
    1. Dissolved Oxygen
    2. pH
    3. Flow rate
    4. ECP (Electrochemical Corrosion Potential)
    5. Temperature
    6. Geometry
    7. Clogging

  Dissolved Oxygen is the only parameter that will be controlled while rest of the above parameters will be monitored.

Experimental Plan:

Run experiments at various DO levels between 4 ~ 5 ppb (APS water) to 8 ppm (Test stand water).

In case, precise control of DO is not be possible by mixing the two types of water, we can segregate our experiments into smaller brackets of DO levels such as < 10 ppb, 10 – 20 ppb etc.

Analysis:

- In the first phase of our experiments, we will be studying the effect of DO on:
  Flow rate
  ECP
- I am planning to monitor:
  pH
  Conductivity
- Determination of ECP and pH will help us to locate expected phase on the Pourbaix diagram.
- Geometry effects will be studied by using three different types of components.
- Microstructural Analysis on the inner surface of the samples