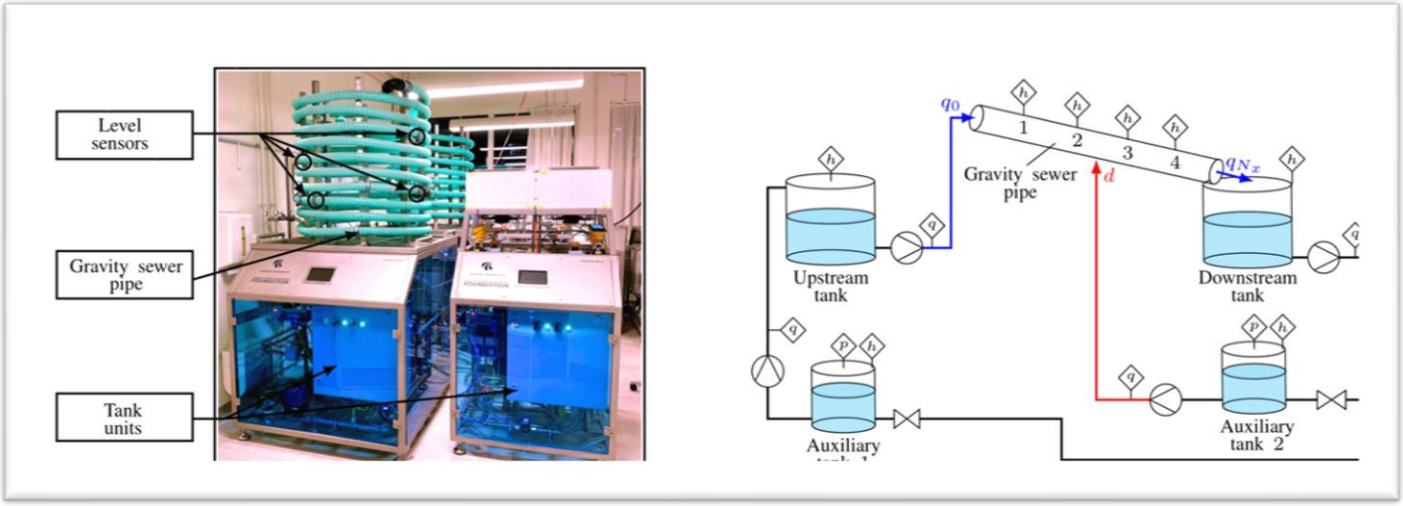
Instructions for setting up the Waste Water Network Control Laboratory Configuration in the AAU Smart Water Lab



Pumping Station (PS) #3

IP: 192.168.100:43

Preset: 12

Max. Inner tank: 703 [mm] (the sensor is calibrated to this level, meaning overflow)

Pumping station (PS) #2

IP: 192.168.100:42

Preset: 12

Max. Inner tank: 630 [mm]

Consumer unit (CU) #3

IP: 192.168.100:32

Preset: -

District elevation / air pressure: 0.5 [m]

Consumer unit (CU) #4

IP: 192.168.100:33

Preset: -

Pump layout:

Pump 1 (upstream pump) is on PS#3

Pump 2(downstream pump) is on PS#2

Pipe disturbance pump is on PS#2

Tank 1 (upstream) disturbance is on PS#3

Pump ranges:

Pump 1:

- Min. Control: 65 [%]
- Max. Control: 100 [%]
- Min. Flow: 4.5 [l/m]
- Max. Flow: 11.2 [l/m]

Pump 2:

- Min. Control: 40[%]
- Max control: 100 [%]
- Min. Flow: 4.6 [l/m]
- Max. Flow: 19.6 [%]

Pipe disturbance pump :

- Min. Control: 60 [%]
- Max. Control: 100[%]
- Min flow: 4.8 [%]
- Max flow: 11.5 [l/m]

Tank 1 disturbance :

- Min. Control: 45 [%]
- Max. Control: 100 [%]
- Min. Flow: 4 [l/m]
- Max. Flow: 8.7 [l/m]

Lab Init script:

Script name: "*outer_tanks_init.m"*

PS#2 : Select **Preset 12** -> **Preset 13**

PS#3 : Select **Preset 12** -> **Preset 13**

The init script brings the outer tank levels down to a minimum level. The preset changes open valves, allowing to let the volumes out from the outer tank areas, which are normally closed under control. (Under overflow volume just accumulates in them.) Use this script after tests with heavy overflows.

Lab connections:

- PS#3/OUT5 -> PS#3/IN1
- PS#3/OUT3 -> PS#2/IN6
- PS#3/IN4 -> CU#3/OUT1_3
- PS#2/OUT3 -> CU3/IN1_2 (T) (where T is the T joint)
- PS#2/IN7 -> PS#2/OUT5
- PS#2/IN4 -> CU4/OUT1_3
- CU4/IN1_1 -> CU3/IN1_2 (T)

Figure 1- Consumer unit #3

Figure 2- Consumer unit #4

Figure 3- Pumping station #3

Figure 4 - Pumping station #2

System fill

Figure 5 - Pumping station #3 filling tank

Extra picture documentation:

Figure 6 - Air pressure supply

Figure 7 - T-joint

Level calibration in the inner & outer tanks on pumping units